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The Society wishes it to be understood that responsibility for opinions and material contained in articles, notes and reviews is that of their authors, to whom any resulting correspondence should be addressed.

Yorkshire Archaeological Journal, Vol. 68, 1996

EXCAVATIONS ALONG THE CAYTHORPE GAS PIPELINE NORTH HUMBERSIDE

by Philip Abramson

with specialist contributions from
Anthea Boylston, John Dore, Christine Haughton, Jacqueline P. Huntley, Peter Makey,
T. G. Manby, Dr. A. Milles, Dr. Charlotte Roberts and Dr. Sue Stallibrass.

Illustrations by R.K. Simpson.

Summary

The Caythorpe gas pipeline corridor ran for 4.5km across an area of the Yorkshire Wolds recognised for its archaeological importance. Intensive aerial photographic survey has demonstrated the density and diversity of cropmarks within the study area and the excavation of the corridor provided a rare opportunity to place excavated features into the wider context of landscape development. Early prehistoric features recorded within the corridor included pit groups of Neolithic and Bronze Age date, many of which produced significant pottery assemblages, and two hitherto unrecorded round barrows. Five linear pit alignment and ditch boundaries were also investigated. On the lower ground of the Gypsey Race valley, three hitherto unknown sites; an Iron Age square barrow cemetery, a Romano-British settlement and an Anglian settlement were excavated and recorded.

BACKGROUND

Introduction

The excavation of the Caythorpe gas pipeline was undertaken by Northern Archaeological Associates for Kelt UK Ltd between April and June 1992. The 4.5km long underground pipeline was located to the south and east of Rudston, approximately 7km west of Bridlington (Fig. 1) and was constructed to link a gas production site in the Great Wold Valley, east of Low Caythorpe Farm (TA 122 679), to the British Gas installation on the wold summit, south-west of Rudston Beacon (TA 092 653). The corridor crossed three parishes starting at the gas production site within Boynton parish, passing through Rudston parish and finishing in Burton Agnes parish south of the Woldgate.

Topography, soils and geology

The area of the Wolds transected by the pipeline corridor is characterised by two distinctive topographical areas; the Great Wold Valley and the wold summit. The Gypsey Race, situated within the valley, is the main natural watercourse in the area and runs eastwards to enter the sea at Bridlington. Except in times of severe

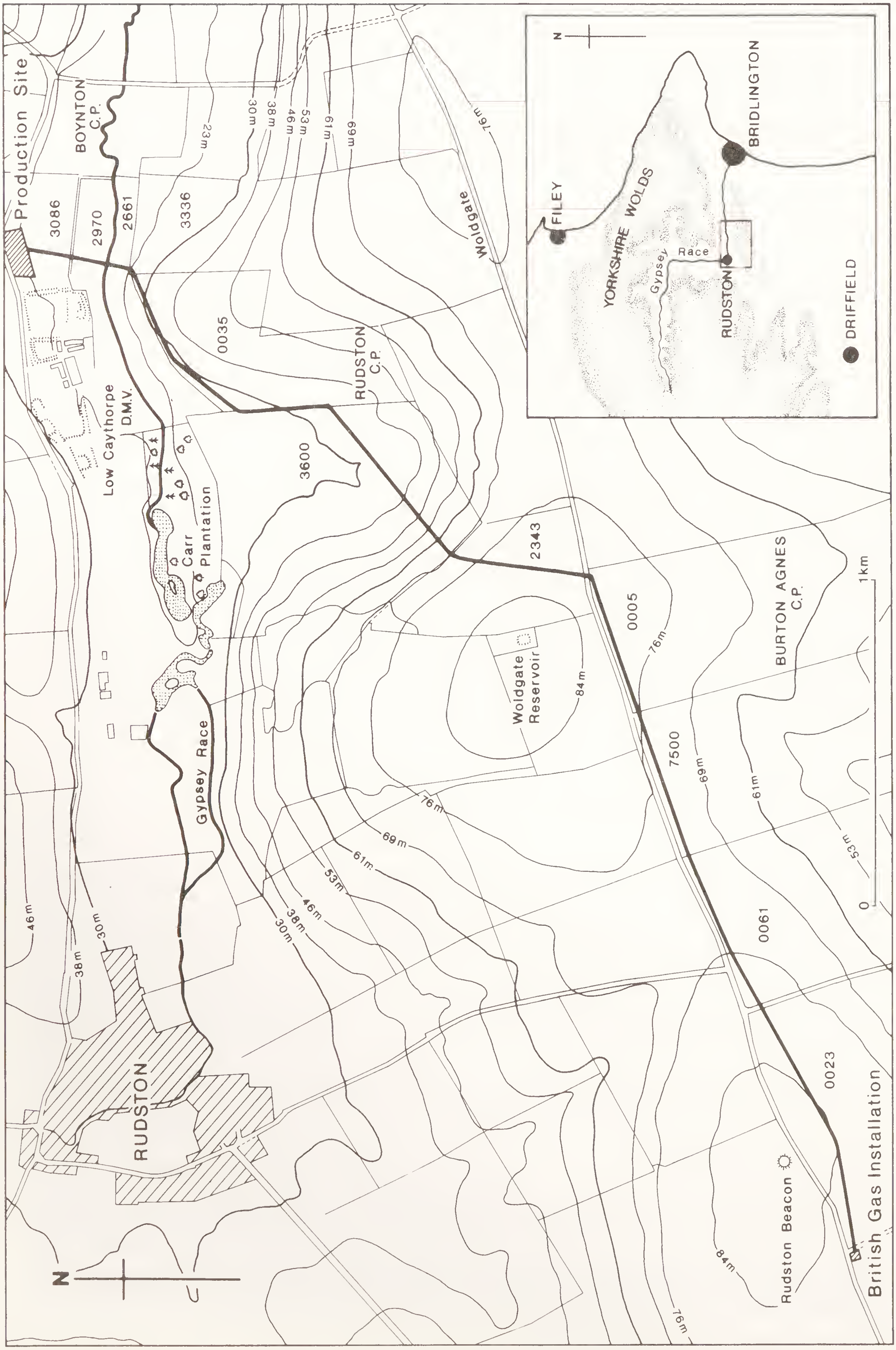

Fig. 1. Plan of the pipeline corridor showing topographic detail and the Ordnance Survey field numbers.

flooding, the course of the river is usually shallow. The wold tops now have a thin soil over a reddish-clay subsoil, while the valleys are floored with gravel overlaid by hill-wash material. The present landscape is characterised by large fields under intensive arable cultivation sub-divided by hedgerows and substantial blocks of plantation woodland laid out in the parish enclosures of the late 18th and early 19th centuries. The calcareous soils are well drained and variably flinty (Jarvis *et al*, 1984).

Changes in the underlying geology were recorded in the sides of the 1.5m deep pipe trench which cut into the subsoil along the full length of the corridor. Cretaceous chalk was recorded along the wold plateau and down the valley slope to the 60m AOD contour, at which point the chalk dipped and was sealed by extensive sand deposits. Alternating bands of gravel and sand were recorded to a depth of 1.5m on the valley floor close to the Gypsey Race.

The pipeline route

From the gas production site situated on the north side of the Gypsey Race at a height of 20m AOD, the corridor crossed the valley floor on an approximate north to south alignment (Fig. 1). The route then turned to the south-west and ran parallel to a fence line and along a former trackway to the south-east of Carr Plantation. The corridor continued up the valley slope to the east of the Woldgate Reservoir at 85m AOD. After crossing under the Woldgate the corridor ran in the fields adjacent to, and south of, the road and terminated at the British Gas installation opposite Rudston Beacon.

Archaeological background

The pipeline transected a part of the Yorkshire Wolds landscape which is particularly rich in archaeological sites of national and regional importance (Fig. 2). Seven archaeological sites scheduled as Ancient Monuments were situated close to the corridor route and numerous other sites of regional and local significance within the study area have been identified by the Yorkshire Wolds Survey compiled by the Royal Commission on the Historical Monuments of England (RCHME). Lying within an area of intensive arable cultivation the majority of these features have been recorded from aerial photographs and represent most periods of the prehistoric and later occupation of the area. Prehistoric sites, recorded principally on the wold summit, include Neolithic monuments (including the Rudston 'A' cursus), Bronze Age round barrow cemeteries, settlement areas, trackways and boundary systems. Iron Age square barrows have been recorded in the valley bottom and Romano-British, Anglian and medieval occupation appears to have been centred on the Gypsey Race valley, where the earthwork remains of the village and manor of Low Caythorpe deserted medieval village (DMV) are particularly well preserved.

Evaluation and survey

The archaeological importance of the area was appreciated when the development was first planned and the choice of a preferred route option, based on the

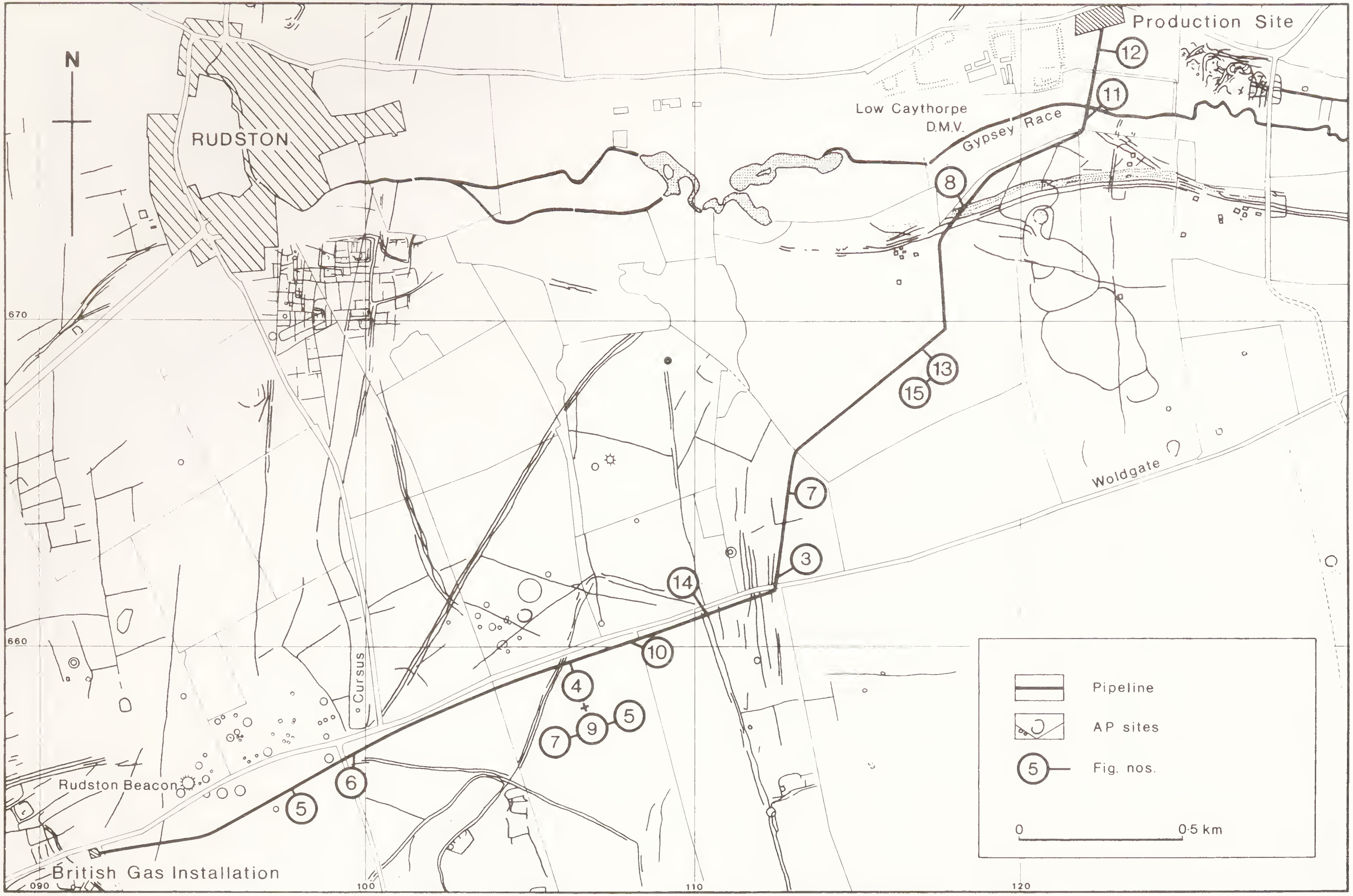

Fig. 2. Plan showing the distribution of cropmarks in the study area (based upon information provided by the RCHME). Numbers in circles refer to the figure numbers of features discussed in the report.

archaeological impact of the corridor (Griffiths 1991), was further refined by a programme of archaeological assessment and evaluation (Cardwell 1991). Included in the latter stage were geophysical survey, intensive fieldwalking and trial trenching within the proposed corridor.

Geophysical survey

A geophysical survey within the route corridor was undertaken by Geophysical Surveys of Bradford to enhance and supplement the existing aerial photographic data. The geophysical survey corridor was also used as the basis for the fieldwalking (see below), although it was enlarged where further information was needed to evaluate alternative route options. In total, 16 previously unknown sites were identified by the geophysical survey in the preferred option corridor, including a previously unrecorded Anglian settlement in Field 3600 (also known as The Great Pasture). The high resolution of the geophysical data enabled pipeline amendments to be recommended at an early stage and was instrumental in the formation of an excavation strategy prior to topsoil stripping.

Fieldwalking

Intensive fieldwalking survey was undertaken within a 30m wide corridor along eighty-five percent of the pipeline route during the autumn and winter of 1991. The remaining area was unploughed at the time of the survey. A total of 6400 flints and 1400 potsherds was recovered and four concentrations of finds were identified as potential sites: three on the basis of flint evidence and one from pottery. The pipeline was subsequently diverted away from two of the major flint concentrations.

Route amendments

In Field 3600 a previously unknown settlement of Anglian, or possibly Romano-British date, was located by the geophysical survey within the initial 30m wide corridor. Additional survey indicated that the density of anomalies diminished to the south of the corridor and although the re-routed corridor in this area still contained archaeology it was considered to be less concentrated than on the original route. A minor route amendment to avoid an enclosure in Field 7500 on the wold summit was also undertaken.

Report format

The report format incorporates a chronologically based description and discussion of the principal sites and features accompanied by three levels of illustration:

i a plan of the corridor showing the location of the principal sites discussed in the text and their figure number (Fig. 2)
ii multi-period strip plans showing the distribution of features within selected areas of the corridor (Figs. 4 and 12)
iii detailed plans of the principal sites and features described in the text.

As an aid to locating the sites mentioned in the text the parish-based Ordnance Survey field numbering system has been used throughout the report. Because there are no repeating numbers it has not been necessary to place the name of the parish alongside the number. Further information on the features described in the text and on other features not mentioned are included in the site archive.

Dating

Samples from five features were submitted for radiocarbon dating. All of the samples, with the exception of a bone fragment from pit 1293 in boundary 1800, were dated by accelerator mass spectrometry at the IGNS laboratory, New Zealand. The calibrated date range for each sample is presented in the text at the 95% confidence level (2σ) followed by the measurement reference code and the uncalibrated date BP (Mook 1986). The full range of dates at the 68% (lσ) and 95% (2σ) confidence levels is shown in Table 4 at the end of the report.

Methodology

Topsoil stripping of a 14m wide corridor was undertaken by a machine working at all times under archaeological supervision. Approximately 0.30m of ploughsoil was removed prior to the identification of features cutting into the subsoil. Archaeological features identified within the stripped corridor were recorded and sample excavated. In the case of pit groups selected pits were either half-sectioned, or, if they produced a significant assemblage of finds, fully excavated.

NEOLITHIC

Features of Neolithic date within the corridor consisted of a linear boundary and pits situated in the fields adjacent to the Woldgate on the Wold summit.

Boundary 1700

A linear boundary comprising a pit alignment and associated ditch was recorded in the southern end of Field 2343 adjacent to, and north of, the Woldgate (Fig. 3). The corridor was widened at this point for a vehicle turning area, thus enabling a greater length of the boundary to be recorded. A small assemblage of Peterborough ware pottery was recovered from two of the pits in pit alignment 1701.

Pit alignment 1701

The pit alignment (1701) consisted of 18 closely-spaced rectangular pits running in an east to west direction across the corridor. The pits measured between 1.5 long and lm wide and between 0.35m to 0.60m deep with both a ‘U’ and ‘V’-shaped profile. In the majority of cases they were filled with an homogenous sand with few inclusions and their weathered sides and bases suggested exposure to the elements for a considerable period of time. Peterborough Ware pottery was

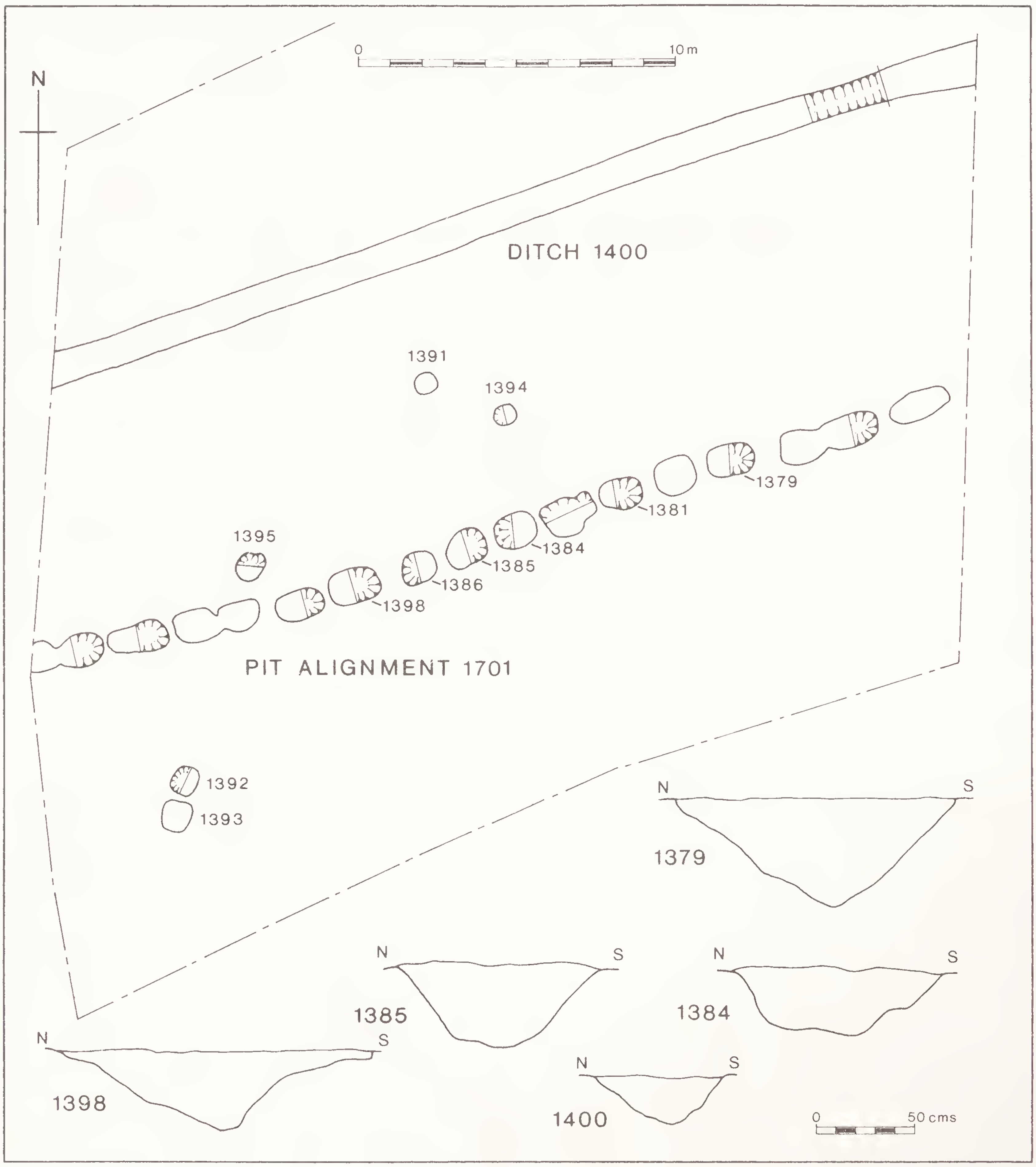

Fig. 3. Boundary 1700 showing pit alignment 1701, ditch 1400 and the profile of pits from which pottery was recovered. The five Bronze Age pits in pit group 1420 are distributed to the north and south of the pit alignment.

recovered from two pits (1379, 1384) and unidentified prehistoric pottery from two others (1385, 1398). A fragment of a Group VI stone axe was recovered from the upper fill (1402) of pit 1386.

Ditch 1400

Ditch 1400 was situated 9m to the north of the pit alignment and ran parallel to it across the full width of the pipeline corridor. The ditch measured lm wide and

0.22m deep and was filled with an homogenous silt sand with few inclusions. No finds were associated with the ditch and the presumed association with the pit alignment was based on the parallel alignment of the two features.

Pits

A total of 48 Neolithic pits were recorded along a 2km length of the corridor on the wold summit. Many of the pits were situated within dispersed or nucleated groups although solitary features were also recorded. A large assemblage of pottery spanning the Neolithic period was recovered from 28 of the pits and three radiocarbon dates confirmed the middle and later Neolithic dates attributed to the pottery from two of the pits.

The majority of the pits were roughly circular and measured between lm - 2m in diameter and, probably as a result of truncation, were rarely deeper than 0.5m. Their fills varied from mixtures of sand and gravel to almost clean sand with few visible inclusions. Pit group 1020, described below, contained pits which were morphologically typical of many of those recorded in the corridor and has been included in the report on the basis of the finds recovered from one or more of the pits within the group. The distribution of pits is shown on the strip plan of part of Field 7500 (Fig. 4).

Pit group 1020

Pit group 1020 comprised six pits distributed over a 60m section of the corridor in Field 7500 (Fig. 4) of which three (1004, 1016, 1032) have been illustrated in detail (Fig. 5). The pits were circular with an average diameter of lm and varied in depth between 0.25m - 0.85m. Ninety-six sherds of Grooved Ware in both the Durrington Walls style and Woodlands style representing a minimum of 25 vessels were recovered from the pits in association with a significant lithics assemblage from pit 1004. Cross-matching pottery sherds were recovered from the fills of all three pits indicating that the pits were open at the same time and that sherds from the same vessel were deposited in more than one pit. A similar deposit model was observed for a Bronze Age pit group elsewhere in the field (see pit group 1500 below). Botanical sampling of the fill of three pits within the group produced evidence of carbonised hazelnut shells. Samples of hazelnut shell and animal bone from the fill (1005) within pit 1004 were submitted for radiocarbon dating. The carbonised shells were dated to within a range of 2920 - 2500 cal. BC (NZA 4695, 4160 ± 80 BP) and the bone was within the range 2860 - 2200 cal. BC (NZA 4705, 3950 ± 70 BP).

Pit group 1230

Pit group 1230 comprised four pits (not illustrated) located at the extreme eastern end of Field 7500. Only two of the pits were excavated (1234, 1236), and 33 sherds of a Peterborough Ware bowl were recovered from pit 1234. Carbonised seeds from the fill (1235) within pit 1234 were submitted for radiocarbon dating and were dated to 3320 - 2690 cal. BC (NZA 4696, 4320 ± 80 BP).

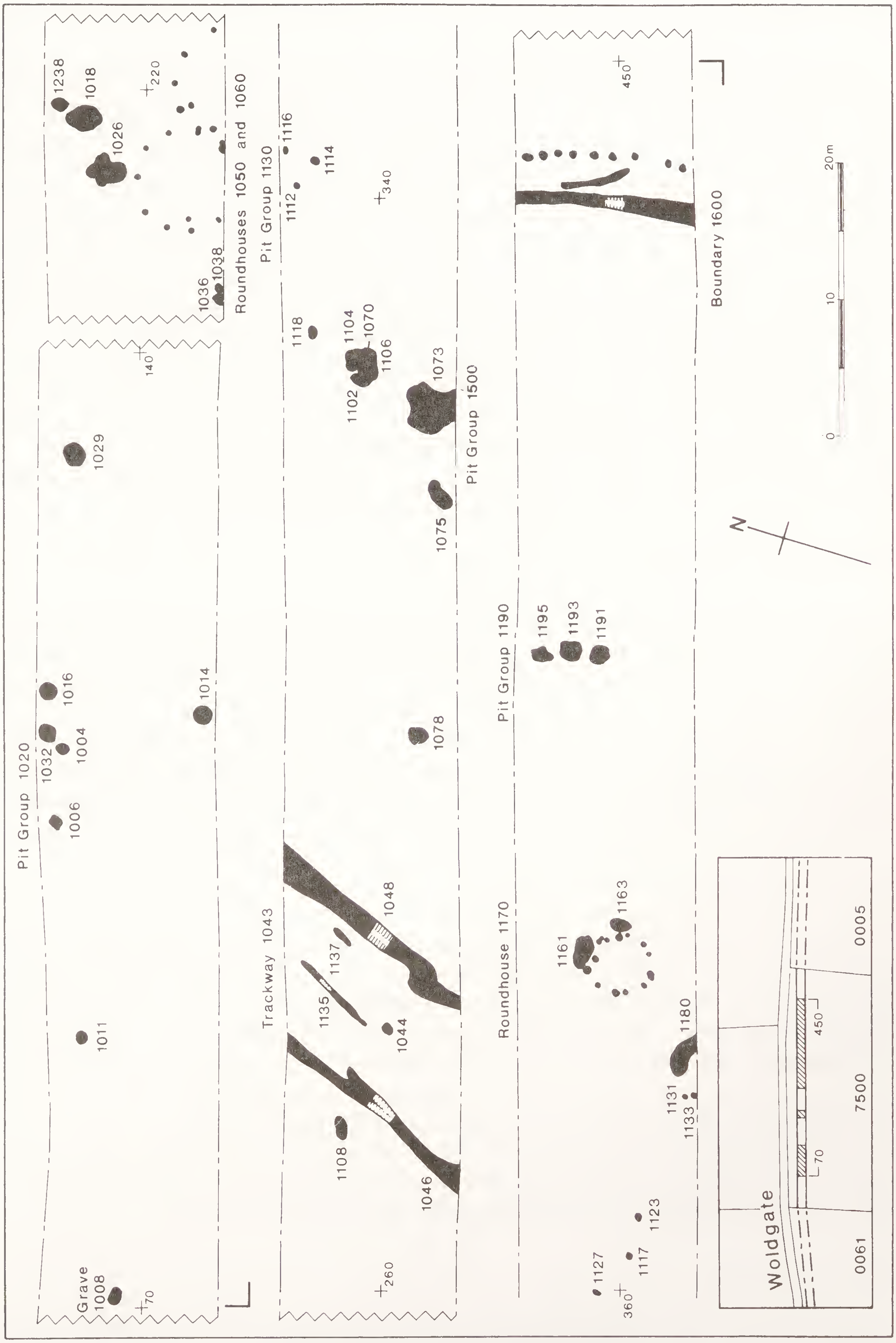

Fig. 4. A multi-phase plan showing the distribution of features in selected areas of Field 7500.

Solitary pits

Two solitary pits (050, 060) in Field 0023 (Fig. 5) at the south-western end of the corridor on the wold summit were notable for their large assemblages of Grooved Ware pottery. Pit 050 was oval in plan and contained two distinctive fills (051, 062), with a greater density of gravel inclusions in the primary fill (062). Grooved Ware pottery was recovered from both of the fills and at least eleven separate vessels were identified. Sherds representing a further five Grooved Ware vessels were recovered from the fill of nearby pit 060. In addition to the pottery, the animal bone assemblage from pit 050 comprised half the total number of prehistoric animal bones recovered from the entire excavations. The preservation of delicate bones was indicated by the survival of an intact neonatal piglet skeleton.

Pit 1370 (not illustrated), situated at the extreme eastern end of Field 0005, contained sherds from four Early Neolithic vessels together with a fragment of a Group VI stone axe and a small number of animal bones. The fill was a stone-free mid-brown sand with diffuse dark humic staining and a black organic-rich deposit on the base. An environmental sample of the basal fill produced pure wheat grains, as well as moderate quantities of apple, pear and crab apple seeds.

EARLY BRONZE AGE

Two previously unrecorded round barrows (500 and 550) were recorded in the corridor towards the western end of Field 0061. The barrows were situated on the southern margin of an extensive round barrow cemetery which was focused on Rudston Beacon and extended eastwards along the wold plateau towards the terminus of the Rudston 'A' cursus to the north of the Woldgate (Fig. 2). The shallow ring ditches of both barrows were amongst the few features that escaped detection by the geophysical survey. Two inhumations were associated with barrow 500.

Round barrow 550

Round barrow 550 (Fig. 6), comprised a shallow ring-ditch (554/556) of *c.*6m internal diameter situated immediately to the north of a larger barrow ditch (barrow 500 below). Much of the northern perimeter and internal area of the ring ditch was outside the corridor and only a third of the internal area of the feature was recorded. The ditch measured *c.*0.5m wide with a maximum depth of 0.18m and appeared to have been cut on its southern side by the ditch of barrow 500. The ditch was interrupted on its south-eastern quadrant but this may have occurred as a result of its shallow depth rather than as a deliberately constructed feature. No internal features or burials were recorded and its interpretation as a barrow is dependent on its association with barrow 500 to the south.

Round barrow 500

Round barrow 500 (Fig. 6) was situated at the western end of Field 0061 and *c.*100m to the south of the Woldgate cursus. The northern half of the barrow was

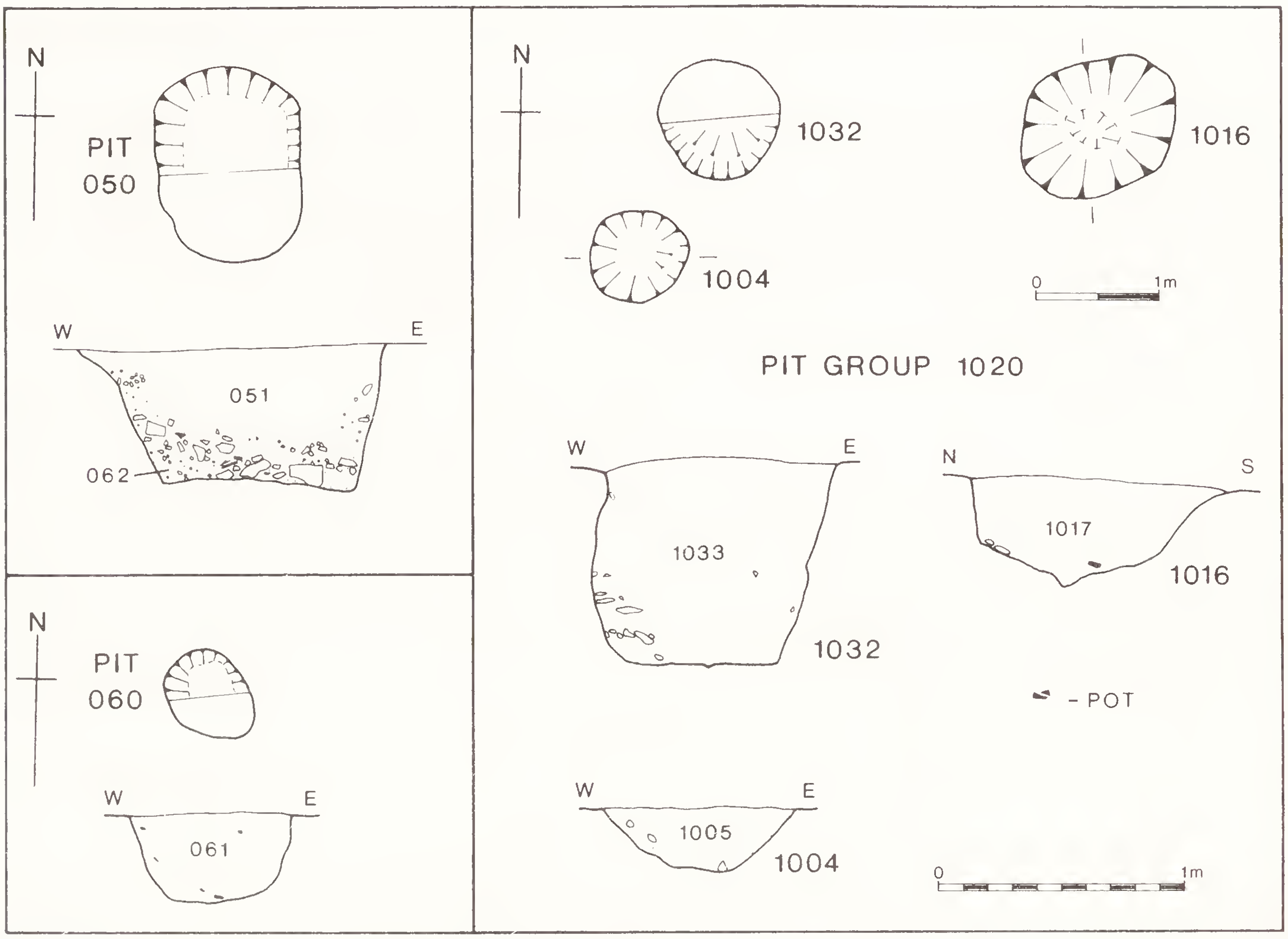

Fig. 5. Neolithic pit group 1020 in Field 7500 (right), and solitary pits with Neolithic pottery in Field 0023.

recorded in the corridor adjacent to, and south of, the smaller ring ditch (500) described above. The barrow ditch measured 19.2m in external diameter and varied between 0.12m-0.24m in depth. The fill was a dark brown clay sand from which several sherds of unidentifiable prehistoric pottery were recovered.

The central rectangular grave cut (528) was orientated north-south and measured 1.8m long and l.lm wide. It contained a poorly-preserved crouched skeleton (529) of a juvenile aged approximately l5 years, of indeterminate sex and orientated north to south. The direction the body faced could not be ascertained because of the poor preservation of the bones. Thin linear stains recorded throughout the depth of the grave fill may have represented either a timber lining of the grave sides or a plank coffin. Several worked flints accompanied the burial and further amorphous stains within the fill may have represented organic objects deposited with the body.

A secondary grave (576) had been cut into the western perimeter of the barrow ditch and contained a crouched inhumation (532). The grave was sub-oval and measured 1.25m north-east to south-west and was 0.68m wide and 0.21m deep. The skeleton of a young/middle-aged adult female lay in a crouched position on its right side and was orientated south-west to north-east with the head to the south-west. No finds accompanied the burial.

Two parallel north to south orientated ditches (580, 538), one of which may have terminated at a large pit, were recorded on the eastern side of barrow 500. Many linear boundaries or trackways are visible on aerial photographs (Fig. 2) and the

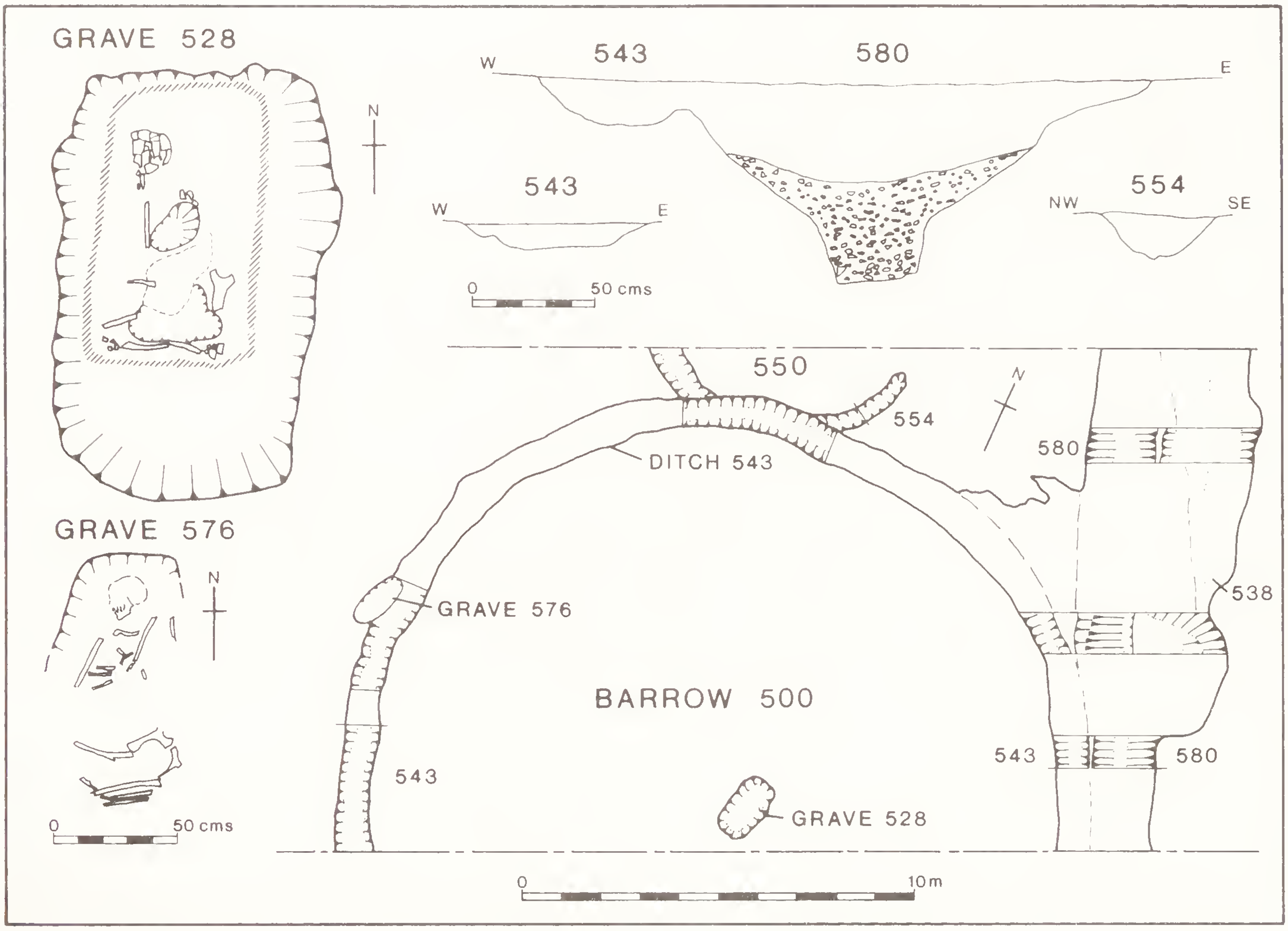

Fig. 6. Bronze Age round barrows 500 and 550 showing associated burials and a linear feature, possibly a trackway ditch, to the east of the barrows.

barrows appear to be situated close to the point of intersection of two such features. The date of the two ditches cannot be established from the stratigraphic relationship with the barrow ditch although a sherd of possible Saxon pottery and an iron nail were recovered from the fill of a possible recut.

Pit groups

Three pit groups of Early Bronze Age date were recorded in the pipeline corridor. Pit group 1420 was situated adjacent to the Woldgate at the southern end of Field 2343 and pit group 2608 was situated at the northern end of the same field. Group 3130 extended the distribution of Early Bronze Age pits beyond the wold summit to the valley bottom.

Pit group 1420

Pit group 1420 (Fig. 3), comprised five small pits (1391-1395) situated adjacent to the Neolithic boundary 1700 in Field 2343. The pits measured *c.*lm in diameter with a maximum depth of 0.11m. Three of the pits (1391, 1392, 1395) contained burnt, shattered stones and may have been hearths or firepits. All-Over-Corded (AOC) decorated pottery was recovered from pits 1391 and 1395 and four sherds of Neolithic pottery from pit 1392.

Pit group 2608

Pit group 2608 consisted of four closely-spaced sub-circular pits at the northern end of Field 2343. The dimensions of the pits were larger than those recorded for the pits on the wold summit, averaging 1.5m in diameter and 0.6m in depth. Pit 2602 (Fig. 7) produced Bronze Age pottery and a significant lithics assemblage. A cup-marked stone and a hammerstone were recovered from an adjacent pit (2606), the largest in the group.

Pit group 3130

Two intercutting pits (3131 and 3137) were situated on a gravel terrace on the south bank of the Gypsy Race in Field 2661 (Fig. 11). A single sherd of Beaker pottery was recovered from the fill of pit 3131. A further 10 pits, closely situated to 3131 and 3137, contained no pottery but may have been of a similar date. The pits were situated 3m to the west of a linear boundary (3134) of possible later Bronze Age date.

LATE BRONZE AGE

Features of Late Bronze Age date were located on the sandy soils of the valley bottom rather than on the higher ground of the wold summit. A multiple ditch and pit alignment boundary running in an east to west direction along the valley floor for a distance of at least 2km was transected by the pipeline corridor to the south-west of Low Caythorpe Farm in Field 0035. Further to the north in Field 2661, boundary 3134 comprised a ditch superimposed over an earlier pit alignment and an assemblage of later Bronze Age pottery, animal bone and flint was recovered from the excavated section.

A nucleated group of intercutting pits (pit group 1500) in Field 7500 produced a significant assemblage of Bronze Age pottery and a fragment of animal bone from pit 1072 was submitted for radiocarbon dating.

Pit group 1500

Pit group 1500 (Figs. 4 and 7) consisted of two pit clusters, 4m apart, located towards the centre of Field 7500 on the wold summit. Three small pits (1102, 1104, 1106) with a maximum depth of 0.25m were truncated by a later and deeper pit (1070) from which 50 biconical urn sherds representing two vessels were recovered from the upper fill (1072) and a further 74 urn sherds were recovered from the lower fill (1121). These sherds cross-matched with sherds from the fill of pit 1073 (see below). A sample of animal bone from the fill (1072) of pit 1070 was radiocarbon dated to 1410 - 990 cal. BC (NZA 4701, 2960 ± 75 BP)

Five intercutting pits (1073, 1197, 1198, 1240, 1246) were situated 4m to the south-west of those described above. Two of the pits (1240, 1246) had been backfilled as one operation. Pit 1073 cut pit 1197 which was in turn cut by pit 1198. The largest of the pits (1073) measured 4m by 3m and 0.7m deep and was orientated approximately north to south. The sides were either slightly undercut

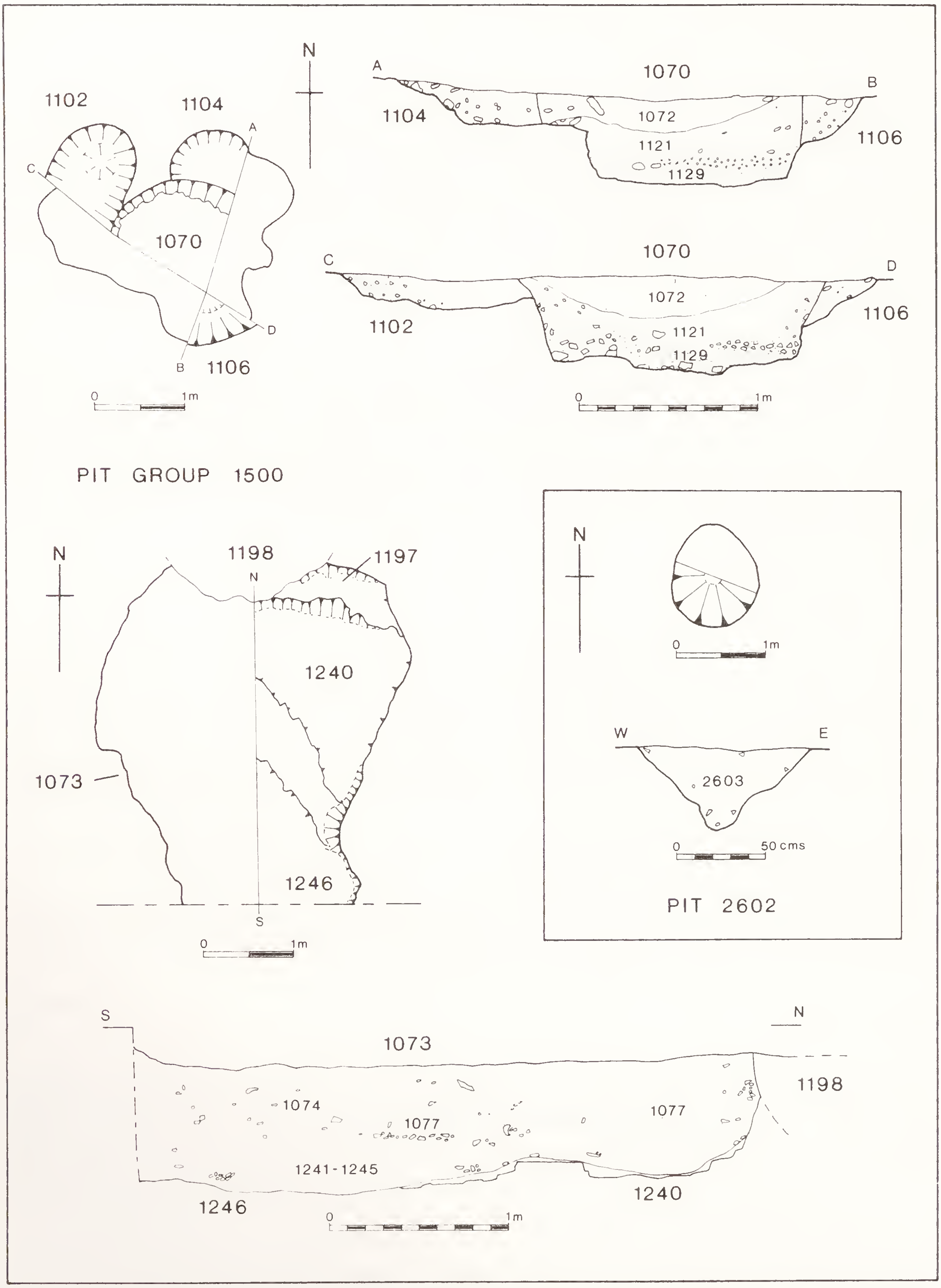

Fig. 7. Middle/Late Bronze Age pit group 1500 in Field 7500 and (inset) Pit 2602 in early Bronze Age pit group 2608 at the northern end of Field 2343.

or near vertical and the base was as flat as the chalk would allow (the solid chalk was very fragmented and shattered at the base). Approximately fourteen vessels were represented by fabric in the pit group with cross-matching sherds present in most of the pit fills.

Multiple boundary complex

Three parallel pit alignments (Fig. 8) ran on the same alignment as the ditches described below and the small quantity of pottery recovered from their fills suggested that they had infilled in the 1st millennium BC or later. In the one instance where a pit alignment (2130) and ditch (2092) converged, the alignment proved to be earlier. In most cases the pits were filled with an homogenous windblown sand which was almost devoid of any gravel inclusions. Further evidence for aeolian action was indicated by the accumulation of up to 0.3m of sand below the plough soil which sealed the edges of the pits and ditches in the boundary complex. The shape of the pits within each alignment was noticeably different and typical profiles have been illustrated in Fig 8.

Pit alignment 2129

Pit alignment 2129 was the most easterly of the alignments and comprised six pits running in an east to west direction diagonally across the width of the corridor. The pits were circular in plan with straight sides and a diameter of between lm to 1.13m. and between 0.34m to 0.66m deep. Their fills varied from a clean, mid-brown sand with one or two medium-sized stones to an homogenous mixture of sand and chalk gravel. In one instance there was a noticeable distinction between the gravel fill at the base of the pit and a sand layer above it. The spacing between each of the pits, measured from their centre, was *c.*2m and the alignment was situated *c.*l6m to the west of pit alignment 2130. Pit 2064 within the alignment was cut by a north to south aligned ditch (2116), which, on the basis of pottery recovered from its fill (2117), was probably of Romano-British date.

Pit alignment 2130

The five pits within the central alignment (2130) were more rectangular than those of alignment 2129 with average dimensions of 1.10m by lm and depths ranging between 0.17m to 0.34m. The fills were without exception a mid-brown sand with infrequent chalk inclusions. The spacing between each pit, measured from their centre, was *c.*2.4m. The alignment converged towards ditch 2092 and had been cut by the later ditch.

Pottery from the fill (2091) of pit 2090 was of a similar type to a bowl from Staple Howe and dated to the 8th-7th centuries BC. Sherds of a similar date were also recovered from the fill (2905) of pit 2904.

Pit alignment 2131

Pit alignment 2131 was situated *c.*1lm to the west of alignment 2130 and comprised four pits within the width of the corridor. The sub-rectangular pits were larger than those of the other two alignments with average dimensions of 1.8m by 1.7m and 0.5m deep. The fills consisted of a mid-brown sand with few gravel inclusions. The spacing between each of the pits, measured from their centre, averaged *c.*3m, which was significantly greater than for the pits in the other two alignments.

Ditches

Six ditches ran on a similar orientation to the three pit alignments described above (Fig. 8). The three ditches at the western end of the boundary remained outside the course of the pit alignments although it was clear from aerial photographs further to the west of the corridor that they were associated with the linear boundary. Ditch 2092 cut through the central pit alignment 2130 providing direct evidence for the relatively later incorporation of the ditches into the boundary. Ditch 2118 at the far eastern end of the boundary was cut by a ditch of Romano-British date (2116), which also cut through pit 2064. The junction of ditches 2116 and 2120 suggested that they were contemporary.

The earliest pottery associated with the complex was a single, possibly residual, Beaker sherd from the primary fill of one of the deepest of the ditches (2001). This V-shaped ditch was lm deep and filled with distinct bands of sand and gravel suggestive of a gradual backfilling of the ditch void. Two sherds of Anglian pottery were recovered from higher up the ditch profile. A nearby hearth (2041) from which Bronze Age pottery sherds were recovered may also have been associated with an earlier phase of activity in the area.

Ten metres further to the west five sherds of Romano-British pottery of probable 2nd century date were recovered from the fill of ditch 2122. Although of a similar width to ditch 2001, its profile was more rounded and it was only 0.3m deep.

Fifteen metres to its west, a third ditch (2124), was almost lm deep and filled with alternating bands of sand and gravel. Although devoid of any pottery, flint debitage was present in the surface fill.

Two small fragments of pottery dated to the 1st millennium BC and three sherds of Anglian pottery were recovered from ditch 2092. Its width of 3.8m distinguished it from the four ditches described above although its depth and profile were similar to those of ditch 2122. A fourth ditch (2118), situated at the far eastern end of the alignment was 0.6m deep and filled with sand and chalk gravel and was cut by a later ditch of Romano-British date (2116).

Boundary 3134

Boundary 3134 consisted of a possible pit alignment and two ditches (3167/3169), 1.7m wide and 40m long, which ran along the eastern edge of the corridor in Field 2661 south of the Gypsey Race (Fig. 11). The pit alignment had been cut by the earlier of the two ditches (3167), which in turn was cut by ditch 3169. Layer 3134 sealed the cuts for both the ditches and produced 13 sherds of later Bronze Age pottery, 12 fragments of animal bone and three flint flakes. At its northern end the boundary ran towards square barrow 3190 which appeared to have been a later feature.

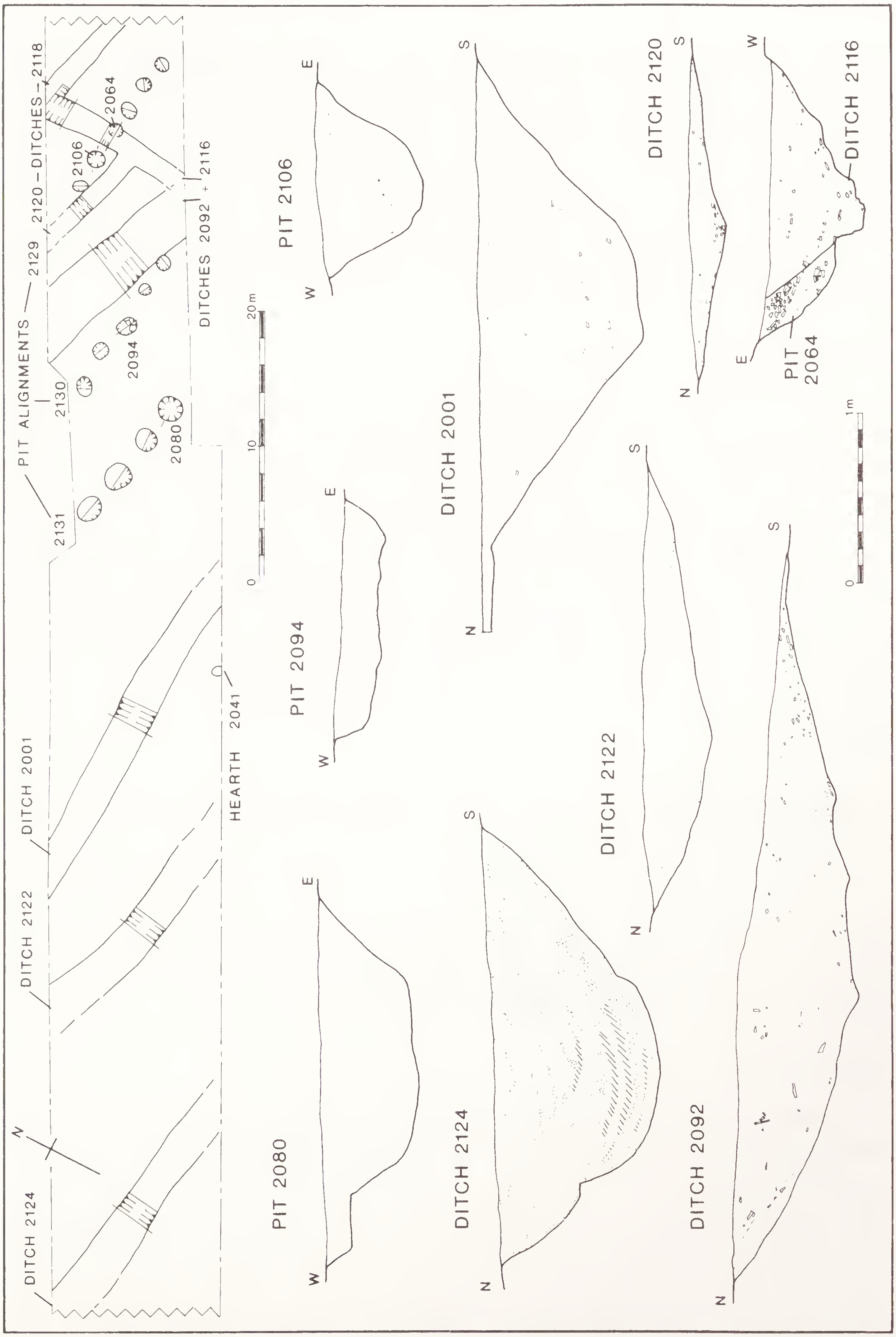

Fig. 8. The later Bronze Age boundary complex in Field 0035 showing typical pit and ditch profiles. Two Romano-British ditches (2116, 2120) cut across the eastern end of the boundary.

IRON AGE

Three roundhouses and a single grave were recorded on the wold summit in Field 7500. In Field 0005 to the east, a pit alignment (boundary 1800) was cut by a substantial ditch and a sample of bone from one of the pits was submitted for radiocarbon dating. Several trackways and ditch systems were recorded in the corridor and these related to extensive cropmarks recorded on aerial photographs. A second solitary burial in Field 0035 had been disturbed by a later ditch and nearby field boundaries contained sherds of Iron Age pottery. At the northern end of the pipeline corridor two square barrows were situated on a gravel terrace on the south bank of the Gypsey Race.

Structures

Three roundhouses were identified on the wold summit in Field 7500. In each example the only surviving evidence consisted of a ring of shallow postholes associated with the structure's external wall. Allowing for soil erosion and plough damage it is likely that these would originally have been considerably deeper than the maximum depth of 0.44m recorded during the excavation. Roundhouses 1050 and 1060 were so close to each other that they were unlikely to have been contemporary. It is more likely that one was a replacement for the other, although there was no stratigraphic evidence to suggest the phasing of the construction. Although there were no finds associated with the structures they have been categorised as Iron Age on the basis of their circular ground plan and the nearby burial.

Roundhouse 1170

Roundhouse 1170 (Fig. 9), was situated *c.*150m to the east of roundhouses 1050 and 1060 described below, and although it was circular in plan, two factors distinguished it from those structures; the 13 postholes posts were arranged in pairs around the circumference and its diameter of 4.5m was significantly smaller than that of the two other structures. The postholes measured *c.*0.25m in diameter and varied between 0.03m - 0.20m in depth. No floor surface or internal features were recorded, although two shallow scoops outside the north-eastern quadrant of the ring may have been associated with the roundhouse.

Roundhouse 1050

Roundhouse 1050 (Fig. 9), comprised a circular setting of nine postholes forming a ring 7.25m in diameter. The postholes measured *c.*0.25m in diameter and varied in depth between 0.08m - 0.22m. The spacing between the postholes was 2.25m and there was no obvious wider spacing to form an entrance, although this may have been located on the southern part of the structure which was outside the corridor. On its eastern side the structure abutted roundhouse 1060. No floor deposits or internal features were associated with the structure although three large pits to the north appeared to respect its alignment, suggesting that they may have been contemporary. Six sherds of weathered prehistoric pottery were

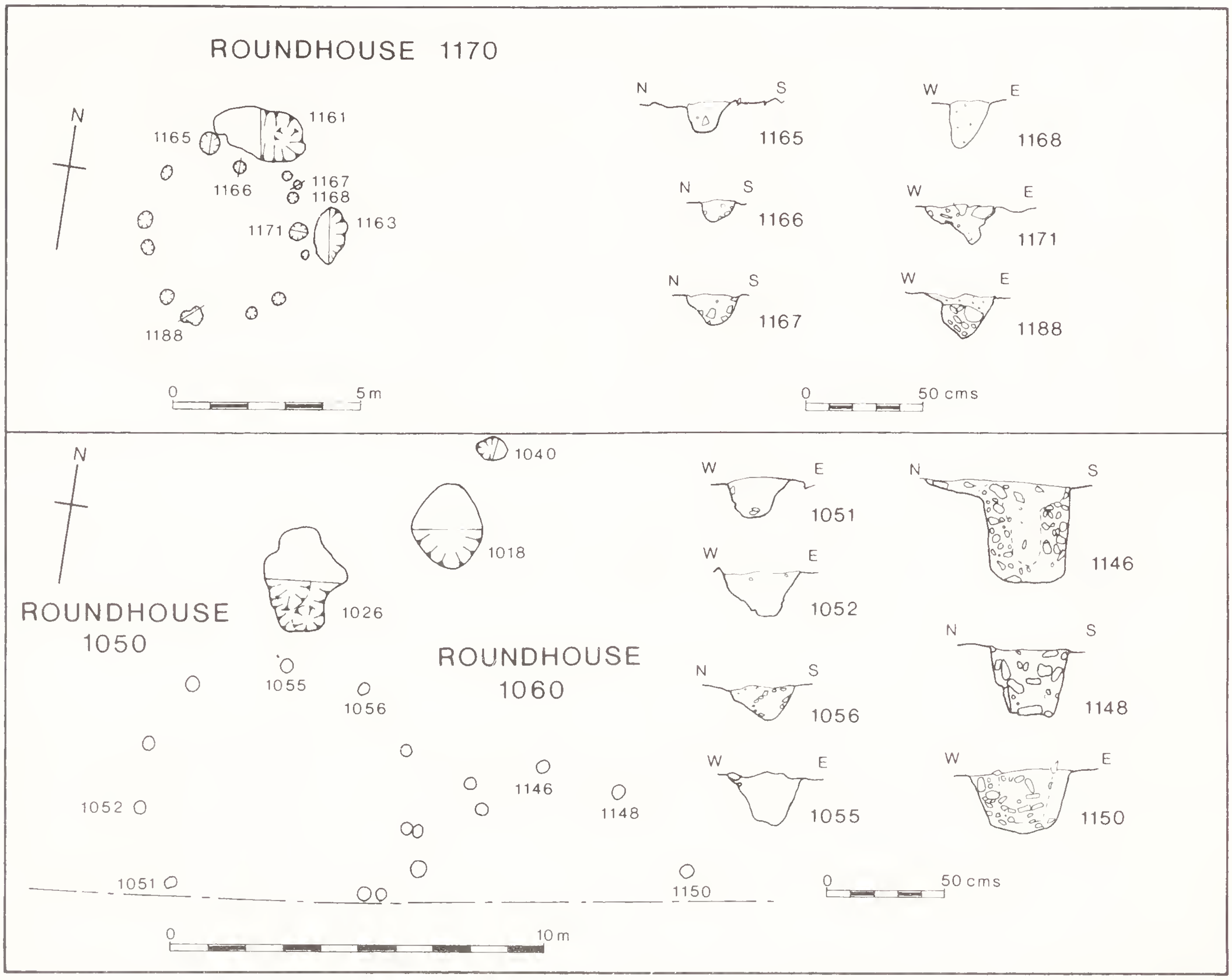

Fig. 9. The three roundhouses in Field 7500 showing their relative sizes and the depth of the postholes and post-pipes.

recovered from one of the pits (1026) together with flint debitage and a fragment of jet.

Roundhouse 1060

Roundhouse 1060 (Fig. 9), was located east of, and adjacent to, roundhouse 1050 above. It comprised a setting of six postholes forming a semi-circle *c.*8.0m metres in diameter with two additional postholes offset from the circumference into the building on the north-western side of the ring. The southern half of the structure was outside of the corridor. The postholes were *c.*0.30m in diameter and varied in depth between 0.06m - 0.44m. In the three deepest settings the post-pipe and the packing material was recorded. The spacing between the postholes was 2.25m, with no obvious widening to form an entrance. No floor deposits or internal features were associated with the postholes.

Boundaries

Boundary 1800

Boundary 1800 (Fig. 10) comprised an alignment of nine circular pits orientated in a north-west to south-east direction running diagonally across the corridor in Field 0005. The pits measured 1.75m in diameter and ranged between 0.60m - 0.80m deep with fills that were typically a primary fill of angular chalk gravel in a matrix of sand sealed by a secondary sand deposit relatively free of inclusions. The spacing between each pit, measured from their centre, was 2.5m. A sherd of unidentifiable prehistoric pottery and several flint flakes were recovered from the pit fills and a sample of animal bone from the fill (1308) of pit 1293 was radiocarbon dated to 400 - 40 cal. BC (RCD-2096, 2170 ± BP). The pit alignment was cut by a wide recut ditch (1300, 1310) which appeared on aerial photographs as an extensive trackway or landscape boundary (see trackway 1900 below).

Burials

Two solitary inhumations and two square barrows were recorded along the corridor.

Grave 1008

Grave 1008 (Fig. 4), was situated *c*.150m to the west of roundhouse 1050. The solitary grave was not associated with a barrow ditch but could be dated to the Iron Age by the pottery associated with the inhumation (1010). The skeleton was of an adult male aged between 35-40 years in a crouched position with the head at the east end of the grave cut and facing north. It was accompanied by a single Iron Age jar with sooting on its internal surface and a single flint flake. The bones were in a fair state of preservation despite the uppermost parts of the body having been no more than 0.05m below the level of modern plough truncation.

In Field 0035, a grave (2309, not illustrated) for an infant inhumation had been cut by a curving slot (2300) and 10 fragments of badly-degraded infant's skull bones were recovered from the base of the grave. Sherds representing at least three Iron Age vessels were recovered from the curvilinear slot and disturbed fill (2301) of the grave and were likely to have been originally associated with the infant burial.

Square barrows

Two square barrows (Fig. 11), were situated on a gravel terrace of the Gypsey Race towards the northern end of Field 2661.

Square barrow 3190

The southernmost barrow was 4m wide and comprised a ditch between 0.40m to 0.85m wide with a maximum depth of 0.27m. No evidence of the mound survived. Two intercutting north to south aligned graves (3110/3129), were situated in the centre of the barrow. The primary grave was 0.45m deep and contained a burial (3127) of a juvenile aged between 6-9 years old and of indeterminate sex. The body was orientated north to south and lay in a flexed position facing west. No grave goods were associated with the burial.

The primary grave had been recut to insert a second inhumation (3126) of a

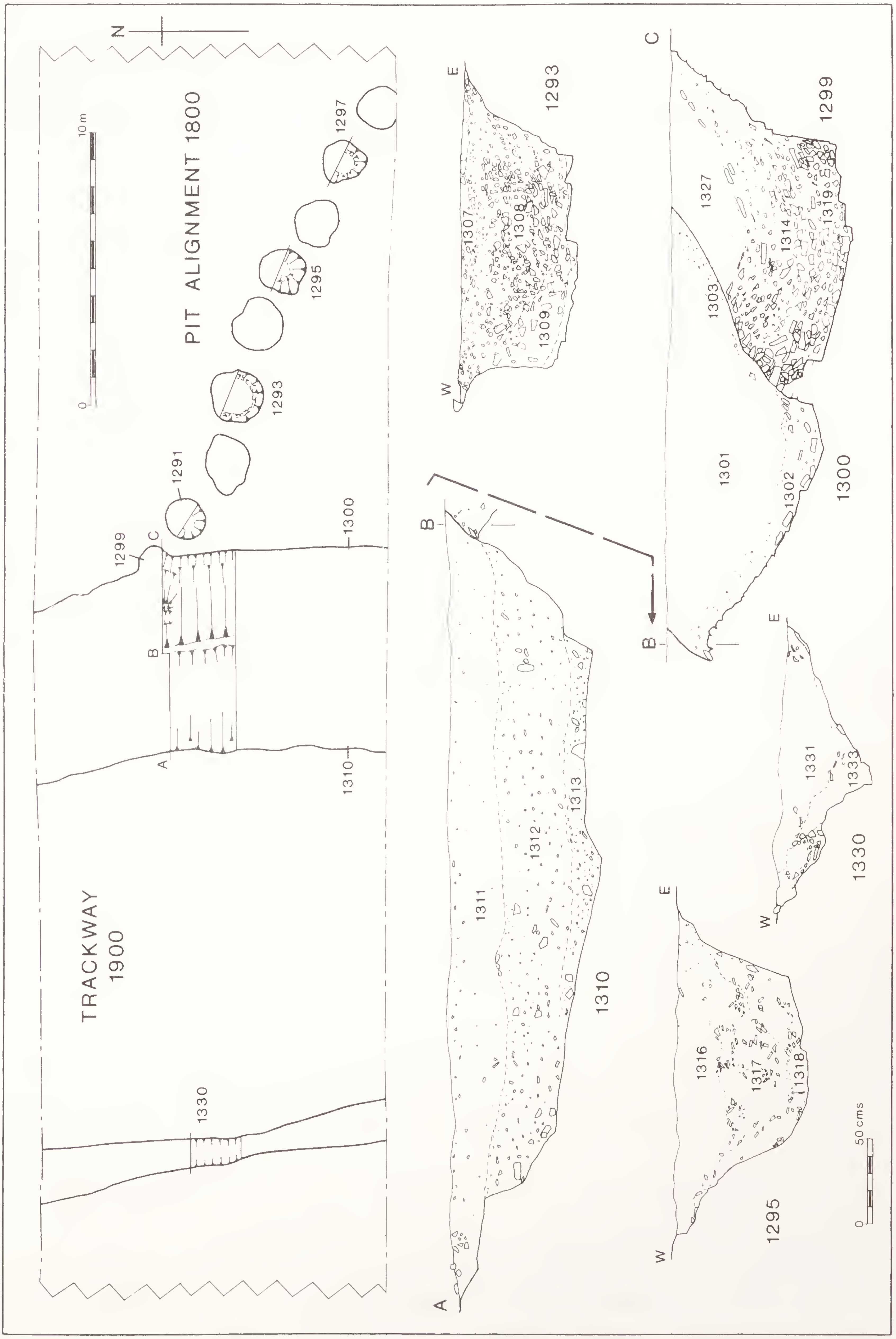

Fig. 10. Boundary 1800 showing the relationship between the pit alignment and the later, double ditch 1300/1310.

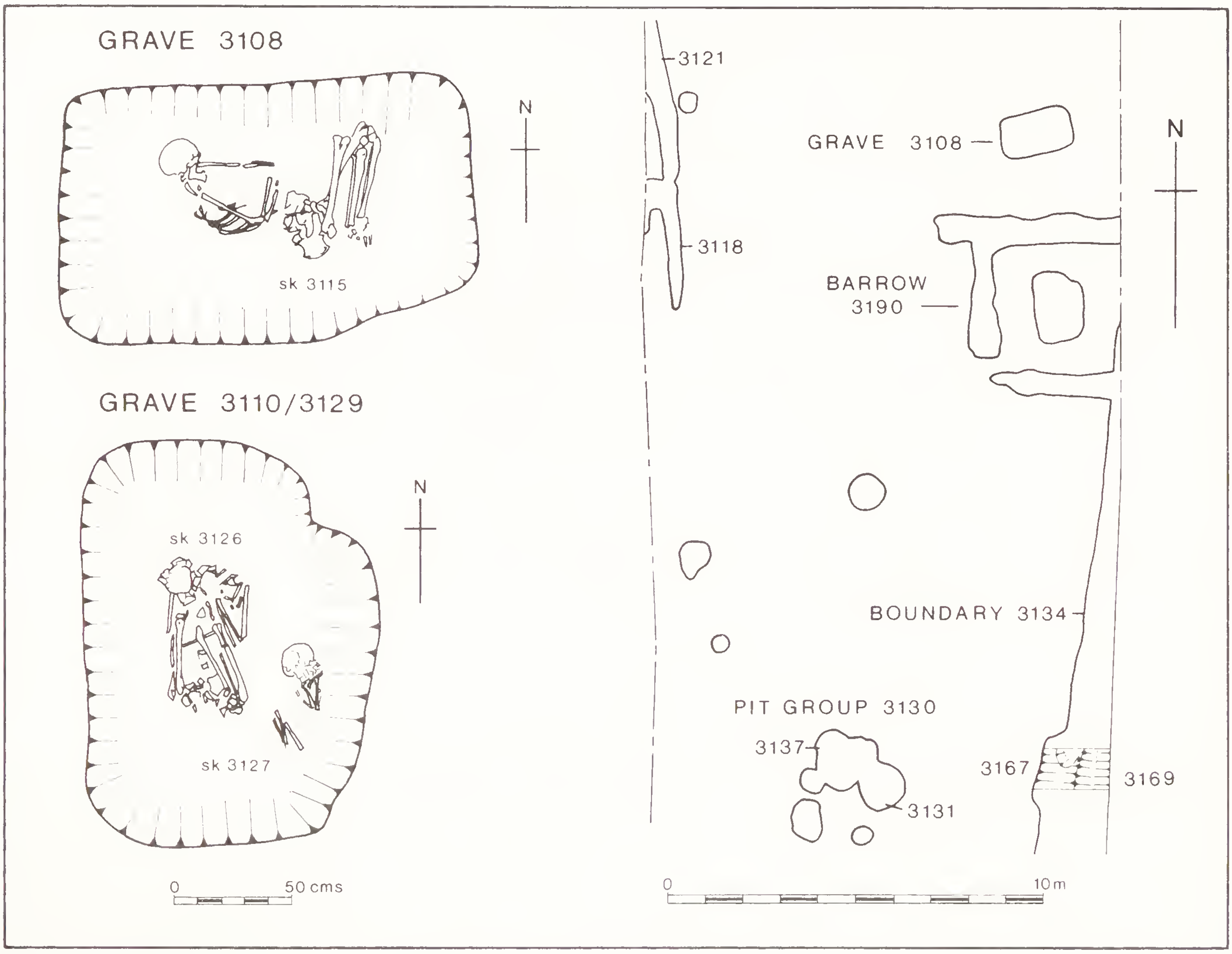

Fig. 11. The square barrows in Field 2661 showing details of the burials. An earlier pit alignment and ditch boundary (3134) and Bronze Age pit group (3130) are shown to the south of barrow 3190.

sub-adult of indeterminate sex and aged approximately 15 years old. The body was orientated north to south and lay in a flexed position facing west. Finds associated with the body included a flint flake and core and a short involuted bow brooch with mineralised fur/sheepskin and textile attached to its front. From the nature of the grave fills and the disturbance to the juvenile skeleton it was clear that the primary interment was that of the juvenile.

Grave 3108

A second grave (3108) was situated 5.0m to the north of barrow 3190. The surrounding barrow ditch had been all but destroyed although the surviving element suggested that the two barrows had been contiguous. The grave was aligned east to west and measured 1.7m by 1.1m by 0.41m deep. The skeleton (3115) was of a young/middle aged male lying in a flexed position on an east-west alignment with the head to the west. The body was laid on its left side with the face looking north. A worked flint was associated with the burial.

A short section of linear ditch along the western edge of the corridor may have been associated with further barrows indicating that the corridor coincided with a gap in the cemetery.

Trackways

Three major linear trackways were bisected by the corridor, two of which (1043 and 1900), had been recorded on aerial photographs. Trackway 1900 was dated to the Iron Age or later and an enclosure abutting trackway 1043 to the south of the corridor was likely to be of Iron Age date.

Trackway 1043

Trackway 1043 comprised two parallel ditches (1046, 1048) running in a north-east to south-west direction diagonally across the easement trench in Field 7500 (Fig. 4). The ditches were less than 0.30m deep with mainly very shallow shelving sides and a shallow concave base. Aerial photographs show the feature as comprising three parallel ditches running in a north-east to south-west direction and possibly turning sharply to the east. A rectilinear enclosure containing a circular structure abutted the ditch at a point close to where it intersected further trackways to the south of the corridor in Field 0061. Several pits were located between the two ditches one of which contained a recent cow burial.

Trackway 1900

The double ditch 1300/1310 (Fig. 10) in Field 0005, showed on aerial photographs as part of a north to south double-ditched trackway with field boundaries and enclosures abutting it to the south of the corridor and terminating at a large circular barrow to the north. It could not be established whether the smaller ditch 1330 to the west was related to the trackway or part of the later, pre-enclosure landscape. The 6.5m wide double ditch cut pit alignment 1800 and it is clear from the divergent orientations that the two features are not part of the same boundary. The mid to late Iron Age radiocarbon date for the backfilling of the pit alignment served as a *terminus post quem* for the construction of trackway ditch 1300.

Trackway 600

A trackway, (not illustrated) on the boundary between Fields 0061 and 7500 was shown upon excavation to consist of five parallel trackways within a broad hollow-way, 18.9m wide, running in a north to south direction. Wheel ruts worn into the base of the trackway measured 1.4m apart. The track may have joined with a major trackway showing as a cropmark 200m to the north of the corridor and which continued towards a later prehistoric or Romano-British settlement site immediately to the south-east of Rudston village (SE 909672).

ROMANO-BRITISH

A complex array of intercutting ditches and structural features associated with Romano-British settlement was recorded in the corridor immediately south of the gas production site in Field 3086. Further to the south-west in Field 0035 two ditches were recorded cutting an earlier multiple boundary complex (see above).

Settlement

In Field 3086, to the south of the gas production site, initial trial trenching identified a relict topsoil sealing features of Romano-British date which cut into chalk gravel. Further removal of the relict topsoil during the machine stripping of the corridor confirmed the presence of a Romano-British rural settlement distributed over a 100m length of the pipeline corridor (Fig. 12).

The most frequent features associated with the settlement comprised groups of intercutting V-shaped ditches aligned mainly in an east to west direction, between 0.25m to 0.95m deep and whose fills consisted mainly of an undifferentiated grey-brown sand silt with gravel inclusions. Pottery recovered from the ditches suggested their infilling from the later 3rd or 4th century AD, although a small number of sherds hinted at the possibility of an earlier phase of occupation.

Three chalk deposits which may have been the partial remains of building foundations were probably of later Roman date. The largest of these (3204) consisted of a triangular spread of faceted chalk rubble, 0.35m deep and extending for 14m north to south and 8m wide at the southern end. The deposit was bordered on its southern side by two slots (3224, 3226) and three circular postholes (3216, 3218, 3228) cut through the middle of the rubble. Two rectangular depressions at the northern end of the rubble spread may also have been associated with its use. Two other stone deposits to the north (3512, 3582) were more fragmentary and less extensive than that described above, although 3582 was notable for the frequent occurrence of quernstones in its make-up. The absence of associated walls and floor surfaces may have been due to the combined effects of ploughing and robbing after the buildings had been abandoned. The need for such substantial foundations may be explained by the proximity of the Gypsey Race which may have been prone to seasonal flooding.

Roman pottery was associated with all three of the foundations although Anglian pottery was also found in the relict topsoil above deposit 3512. In view of the close proximity of at least one Anglian structure (see below), which was superimposed over the Roman deposits, a later period of use for these features cannot be discounted. This same caveat applies to a group of postholes and pits situated 30m to the south of foundation 3204. The postholes may have been part of a small building (structure 3870) with associated external pits, one of which (3414) was situated 5m to the north of the postholes and produced a sherd of Anglian pottery. A second pit (3561) 60m to the north contained the well preserved bones of an infant burial (3581).

Field system

Two possible field boundary ditches (2116 and 2120, Fig. 8) were recorded in Field 0035 in close proximity to the later Bronze Age multiple ditch and pit boundary complex described above. Ditch 2116 ran perpendicular to the axis of the boundary complex and cut across a boundary ditch (2092) and pit alignment (2129). It could also be distinguished from the Bronze Age boundary ditches by its flat base and a pronounced step on the western side; a profile that was not typical of the prehistoric ditches. Five sherds of pottery, two of which were likely to have

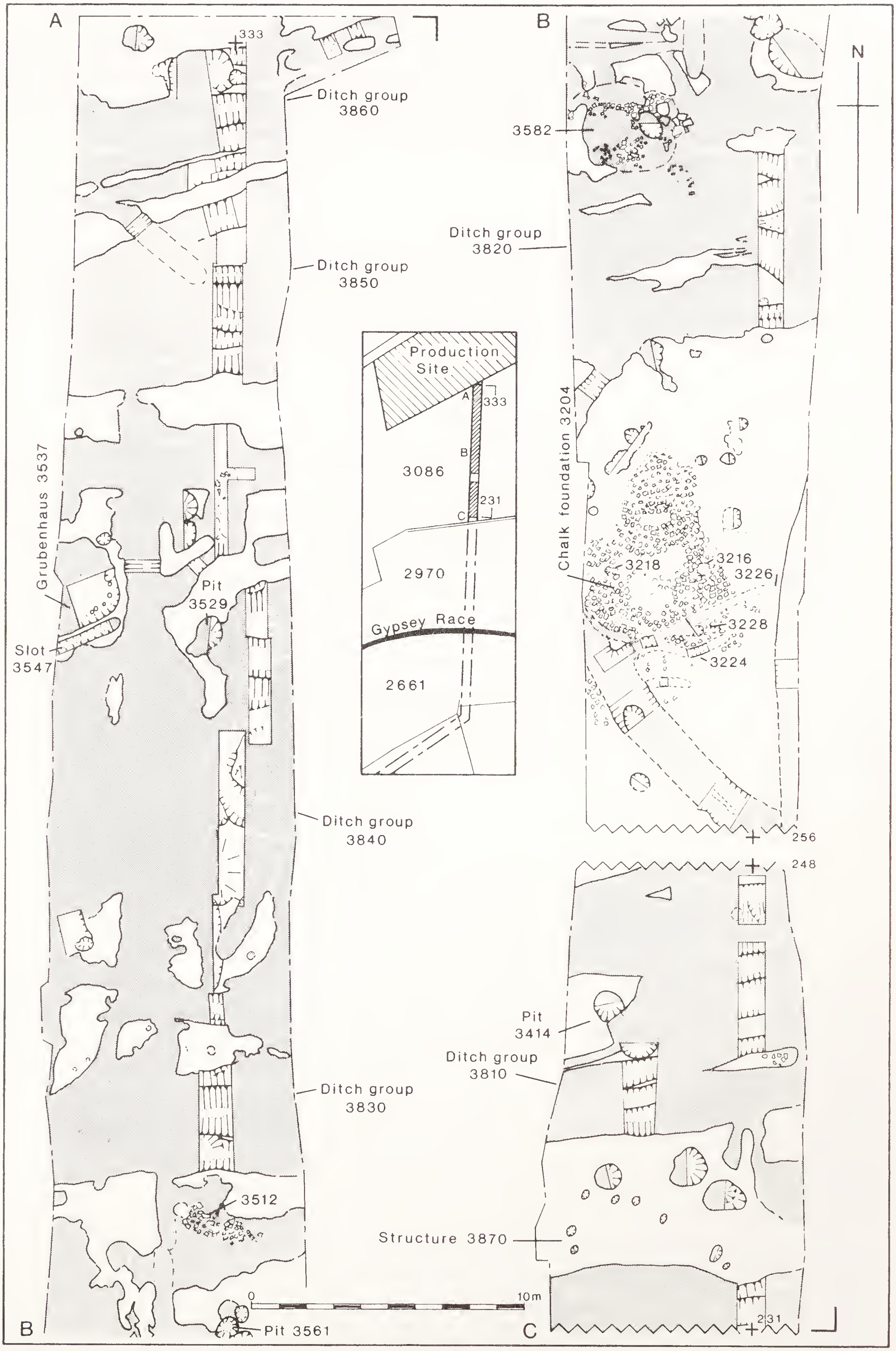

Fig. 12. A detail of the Romano-British linear settlement to the south of the gas production site. The Anglian *grubenhaus* is shown against the corridor edge on the left strip.

been Romano-British, were recovered from the fill of the ditch. Although on the same alignment as the boundary complex, ditch 2120 appeared to be contemporary with ditch 2116. Two ditches of Romano-British date further to south the in Field 0035 (not illustrated) were possibly part of the same field system.

ANGLIAN

Two Anglian structures were recorded in the valley bottom; a *grubenhaus* situated to the north of the Gypsey Race on the site of the Romano-British settlement and a rectangular posthole building located in Field 3600. A sample of animal bone from a posthole of the latter structure was submitted for radiocarbon dating.

Grubenhaus

The *grubenhaus* (3537), which was situated on the site of the Romano-British settlement (Fig. 12), was only partially recorded within the corridor and appeared to continue beyond the edge of the trench. The cut for the structure was 3.2m wide and was filled with a compacted sand with a moderate organic and chalk gravel content. A posthole cut the base of the hollow at its north-east end and a series of circular stakeholes, 0.12m in diameter and spaced at 0.15m intervals was recorded lining the inside of the structure in the excavated quadrant. A slot (3547), which ran alongside the southern edge of the structure may originally have served as an eavesdrip. Fragmentary human remains (3571) were recovered from the fill of the slot. A girdle hanger and three sherds of Anglian pottery however were recovered from a pit (3529) situated 3m to the east of the structure.

Posthole building 2482

A rectangular Anglian timber posthole building (Fig. 13) with internal dimensions of 7.5m x 4m and orientated in a north to south direction along its major axis was recorded in Field 3600. The pipeline corridor had been diverted to avoid a concentration of settlement-type anomalies recorded by the geophysical survey within Field 3600, and it appeared that the structure was on the southern margins of this settlement. The structure comprised 30 elliptical postholes spaced at *c.*0.6m intervals, measured from their centres, with a wider spacing of 0.9m for a doorway between postholes 2431 and 2433 in the middle of the western side. Two postholes (2481 and 2483) at the building's northern end may have been associated with an external wall. The postholes measured on average 0.45m by 0.35m and 0.21m deep and were filled with an homogeneously mixed loose mid-brown sand with an abundance of chalk gravel inclusions. Although it was not possible to distinguish any post-pipes the varying profiles of several postholes suggested that more than one upright may have been inserted. No floor deposits or internal features were associated with the structure and all the finds described below were recovered from the fill of the postholes rather than from within the confines of the building. Finds recovered included an iron knife blade from posthole 2407 and typologically dated to between AD 450 - 700, four sherds of pottery, one of which was Anglian, one Iron-Age or Romano-British and two undated. A fragment of animal bone

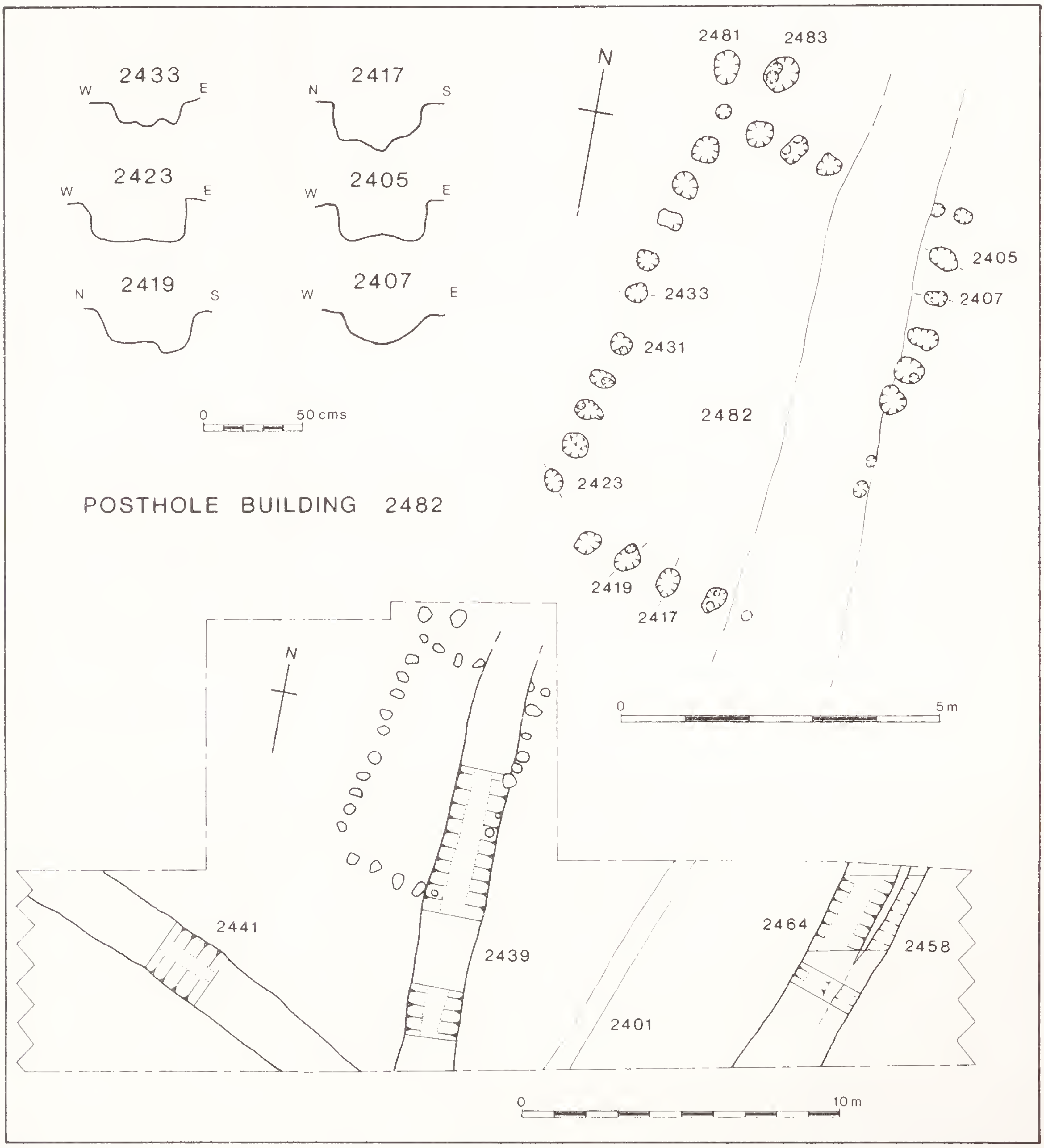

Fig. 13. Plan of the Anglian posthole building and the enclosure ditches to its east and south in Field 3600. Single and twin posts are suggested by the posthole profiles.

recovered from posthole 2437 was radiocarbon dated to 690 - 980 cal. AD (NZA 4703, 1180 ± 65 BP). The homogenous nature of the posthole fill precluded the identification of a distinctive postpipe or packing material but the most likely interpretation of the date range is that it provides a *terminus post quem* for the abandonment of the building.

Two flat-bottomed ditches situated 10m to the south and east of the building shared the same alignment as the structure and may have been part of a surrounding enclosure. The ditches were shown on the geophysical survey to intersect at a point 7m to the south of the pipeline corridor. A later ditch of medieval date which ran along the full length of the building had destroyed approximately six postholes at the north-eastern and south-eastern corners.

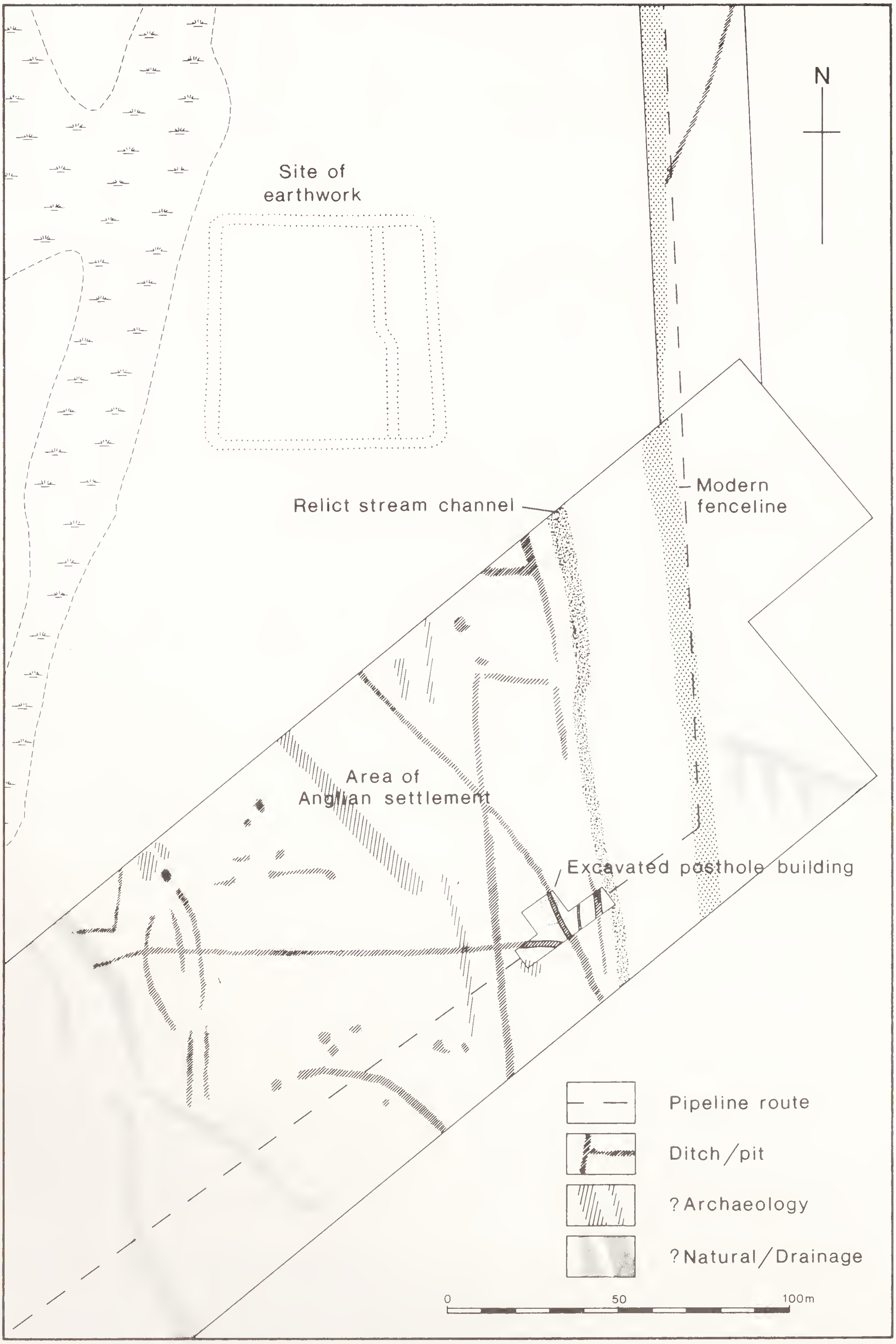

Fig. 14. The location of the Anglian posthole structre with respect to the geophysical anomalies. The route of the corridor was moved *c*.75m to the south to avoid the greatest concentration of settlement related anomalies.

A relict watercourse, approximately l5m wide with a maximum depth of 1.65m, ran in a north to south direction across the easement trench 12m to the east of the Anglian hall. The watercourse consisted of two round-bottomed channels with a banded sand and gravel fill at the base and a humic-stained sand towards the surface. The edges of the gully were well-defined suggesting that it may have been canalised. Eight sherds of Anglian pottery were recovered from the surface fill of the channel together with a fragment of animal bone. The geophysical survey established that the stream bed continued through the settlement in the valley bottom.

MEDIEVAL

Evidence for medieval activity within the corridor was largely absent. On the wold summit several narrow north to south ditches may have been related to the pre-enclosure field system and several pits may have been small chalk quarries. Carbonised bread wheat grains from a ditch in the area of Romano-British settlement were almost certainly of a variety common in the medieval period indicating possible settlement-related activity outside the main area of the medieval village of Low Caythorpe to the west.

DISCUSSION

Evidence for early prehistoric occupation along the corridor largely consisted of single pits and pit groups on the wold summit. Previous investigations on Rudston Wold had located flint and pottery concentrations on the surface of freshly ploughed fields which, upon excavation, coincided with pits whose assemblages were thought to have been representative of domestic activity (Manby 1975). The range of Neolithic pottery recovered from these earlier excavations and also from those within the pipeline corridor included Towthorpe and Grimston styles of the 4th millennium BC through to Peterborough wares and Grooved wares more typical of the later 3rd millennium BC.

The limited size of the earlier investigations restricted their scope to the identification of the finds assemblage and, in particular, to establishing a chronological sequence for the pottery styles. The pipeline excavation has broadened the context of these studies and has indicated that the pits occurred both in groups and as solitary features. It has also demonstrated that their distribution was restricted to the chalk bedrock of the wold plateau with the greatest density being concentrated in two fields (0005 and 7500) to the south of the Woldgate. The distribution of the pits is no doubt a function of the narrow width of the corridor, but it may also be related to settlement activity, evidence of which no longer survives. It has been observed (Manby *ibid*), that centuries of cultivation have truncated and destroyed shallow features such as postholes, floors and hearths, thus creating the impression that deeply dug pits would be isolated features.

Both the contents and the location of the pits may provide evidence of their function. The nature of the animal bones within the prehistoric pits represented ordinary food waste and there was no suggestion of any particular bias within the bone assemblage which could point to ritual deposition. Similarly there was no direct evidence from the lithic and ceramic assemblages to suggest anything other than the disposal of domestic related deposits. It is likely however that such material represented the secondary rather than primary purpose of the pits. There was enough grain in the basal fill of one pit (1370) to indicate that its original function had probably been a storage pit and the relatively small number of carbonised seeds and hazelnuts in several others hinted at a similar purpose.

A ritual origin for several of the pits may however be inferred by their close proximity to a group of large-scale ritual monuments situated on the wold summit. These include the Rudston 'A' cursus which terminates adjacent to the Woldgate, a henge-type monument 500m to its north-east (Manby 1992) and a large circular Neolithic burial mound known as South Side Mount centred on TA 107 666.

The function or functions of the pits cannot be easily established and it is perhaps simplistic to discuss the pits as having either a ritual or domestic function. The large number of pits and their differing sizes suggests that they were not all dug for a single purpose and the variety of fills and assemblages need only reflect their end usage.

It is clear that the wold summit, and possibly also the terminus of the cursus, were the focus of burial activity in the Bronze Age. Greenwell (1877), examined several barrows in the Rudston Wold cemetery including the terminus mound of the cursus, and the numerous burials and accompanying grave goods he recorded are in sharp contrast to the paucity of burials and almost total absence of grave goods associated with the two barrows in the pipeline corridor.

Economically, the material recovered from the early prehistoric deposits points to a reliance on, or at least a preferred utilisation of, local resources and the presence of a settlement area close to the pipeline corridor, and possibly on the wold summit, must be seriously considered. The prehistoric animal bone assemblage, whilst small, is mainly of domesticated animals with only a small component possibly derived from hunting. The palaeobotanical evidence also points to cultivation within the area and exploitation of the landscape. The flint and pottery clay sources are of local origin except for later Bronze Age vessel 50 made from Oxford clay, the nearest deposit of which is at Scarborough (see Manby below).

The duration of any such occupation may be ascertained by the sequence of pottery recovered from the pits. Although early 3rd millennium BC styles are represented, the emphasis is on the Grooved Ware tradition of the later 3rd and early 2nd millennium. Continuity of occupation into the 2nd millennium may be inferred by relatively small quantities of Beaker, Food Vessels and Biconical Urn styles traditionally associated with the Bronze Age.

Radiocarbon dating of deposits from three pits on the Woldgate broadly supported the stylistic dating of the pottery styles. A date range of 3320 - 2690 cal. BC confirmed the middle Neolithic date ascribed to the Peterborough Ware pottery from pit 1235 and the date ranges of 2860 - 2200 cal. BC and 2920 - 2500 cal. BC from pit 1004 supported the later Neolithic date ascribed to the Grooved Ware assemblage. Biconical Urn sherds from pit group 1500 were within a date range of 1405 - 995 calibrated BC and cross-matching urn sherds recovered from several pits within the group demonstrated that the pits were open at the same time. This also applies to Neolithic pits within group 1020 where cross-matching sherds of Grooved Ware vessels were identified.

On the larger-scale problem of prehistoric land management the concentration of pit alignments on the Yorkshire Wolds has been discussed by several researchers (Bowen 1978; Cardwell 1989) who have suggested that they are analogous to the ditches or entrenchments common to East Yorkshire. The Caythorpe pipeline evidence supports the suggestion by Cardwell *(ibid)* that when ditches are found in association with the pit alignments, the ditches are invariably later than the pits.

Three boundaries were recorded on the wold summit and a complex boundary system recorded in the valley bottom. A further boundary was recorded close to the Gypsey Race. Common to all but one of the boundaries was the association of a pit alignment with a ditch, the exception being boundary 1800 on the wold summit where it was clear from the orientation of the two features that the ditch was unrelated to the pit alignment. Where a direct relationship between the pit alignment and ditch could be established, in all instances the alignment pre-dated the ditch. It was also clear that the pits within each of the alignments shared similar characteristics of size, shape and depth which served to emphasise the morphological differences between the alignments. The varied nature of the pit fills appeared to reflect the nature of the subsoil into which the pits were cut; the almost pure sand filling of many pits in the multiple pit alignments in the valley bottom was in sharp contrast to the angular chalk component within the pits of alignment 1800 on the wold summit. Whether the former reflects an infilling by aeolian deposits and the latter a more immediate backfilling with the material originally excavated from the pit can only be surmised.

In all but one instance, the pits were unlikely to have supported posts; the exception being an alignment (1600) on the wold summit in which the size of the pits was smaller than for any other alignment. The distinction between pit alignments and post alignments has been developed by Powlesland (1988) as a consequence of the excavations at West Heslerton.

The boundaries within the pipeline corridor have been dated by the small assemblage of pottery recovered from the fills of several pits and, in one instance (boundary 1800), by a radiocarbon date of a bone fragment. The Peterborough ware pottery from pit alignment 1701 was the earliest from any of the excavated pit alignments and its middle Neolithic date is comparable to the later Neolithic pottery recovered from the Ewart I alignment in Northumberland (Miket 1981). Bronze Age pottery was found in association with the boundary close to the Gypsey Race and the pottery from the multiple boundary complex south of Low Caythorpe Farm was mainly of 1st millennium BC date. The date range of 395 - 45 cal. BC places the *terminus post quem* for the backfilling of pit alignment 1800 firmly into the Iron Age or later and compares favourably with the possible Iron Age origins of the alignment at Cat Babbleton (Cardwell 1989).

With regard to the abandonment of the boundaries, such evidence that is available from the Caythorpe excavation suggests that the land divisions had ceased to be respected in the Romano-British period. Roman and Anglian pottery from the middle fills of pits in the multiple boundary complex suggest that they were open but silting up in the first half of the 1st millennium AD and two ditches of a Romano-British field system cut through one of the boundary ditches. On the wold summit a trackway ditch of possible later Iron Age date cut across pit alignment 1800, which itself may have been silting up in the Iron Age period.

Further evidence of activity towards the middle and end of the 1st millennium BC can be sub-divided into two distinct categories: burial and domestic. Included within the former are two square barrow burials situated on a gravel terrace on the southern bank of the of the Gypsey Race stream and two isolated graves; one on the wold summit and fragments of an infant cranium in a disturbed grave in Field 0035. There are few conclusions that can be drawn from such a small sample. The two isolated burials were each accompanied by vessels of Iron Age date. In the case of the infant burial sherds from at least three vessels were found in association with the suniving cranial bones, although the great majority were from a single vessel. It is worth noting that the two flat graves excavated by Greenwell at Cowlam (Greenwell 1877) were also on an exposed position on a wold top.

With regard to the square barrows, the differing alignments of the central graves may be of significance. Stead (1979) has shown that the east to west aligned burials in the 'Makeshift' cemetery at Burton Fleming may have been later than those aligned north to south, possibly representing a different sect within the population. Perhaps the most significant attribute of the barrow burials, however, was the primary interment of a child. Such burials are extremely rare, suggesting that a separate burial rite was reserved for children.

An iron brooch accompanying the secondary interment was identified as a short involuted bow brooch which, on typological grounds, may be assigned to the La Tène II period of the later 1st millennium BC (Stead 1991). At Wetwang Slack, where a total of 446 burials were recorded, such brooches were associated with deeper cut graves with small barrow platforms (Dent 1982). The presence of mineralised fur or sheepskin on the brooch was only rarely encountered by Stead and suggests clothing on the body at the time of interment.

It cannot be established with certainty whether the two barrows are part of a larger cemetery running along the valley bottom or an isolated group. Two ditches recorded on the western edge of the corridor trench opposite the two barrows may have surrounded burials but this could not be proven without more extensive investigations. Aerial photographs along the valley floor clearly show a second group of square barrows at TA 116 672, 700m west of the excavated group, in apparent association with the later Bronze Age multiple boundary. To the south-east of the excavated barrows several rectilinear enclosures are situated in close proximity to the multiple boundary but it is uncertain whether these are of a funerary nature.

The absence of Iron Age pottery associated with the pits within the corridor was in contrast to the results of earlier investigations in Field 0023 to the south of the Woldgate (Stead 1990). Pottery from the pit groups examined by Stead indicated that the nearby enclosures to the north and south of the Woldgate were likely to have been contemporary with the Arras culture of the mid to late-lst millennium BC and probably continued into the Roman period. Because the corridor route was planned to avoid such enclosures it follows that Iron Age pit groups would tend not to be represented.

The contrast between lowland burial sites and upland settlement activity as a general model for the Iron Age has been noted by Stead *(ibid)* and this trend appears to be supported by the identification of three roundhouses within the corridor on the wold summit. The proximity of an isolated Iron Age burial and the plan of the buildings suggests that the structures are probably Iron Age in date.

In the Romano-British period, however, the location of the settlement in the valley suggests a utilisation of the fertile soils and more sheltered environment of the Gypsey Race valley in preference to the more exposed higher ground of the wold plateau. The settlement was concentrated in a 100m wide section of the corridor on the north bank of the Gypsey Race. Its full extent remains uncertain although cropmarks 200m to the east of the site are likely to be part of the same settlement. The absence of any Roman deposits recorded during the excavation of buildings in the deserted medieval village of Low Caythorpe (Coppack 1974) suggests that the settlement did not extend much further westwards. This appears to be confirmed by the paucity of cropmarks along the valley bottom between the corridor and Rudston village, although the presence of deeper soils which would mask cropmark formation cannot be discounted.

The pottery recovered from the linear settlement was mainly of 3rd and 4th century AD date and the repeated cutting of the ditches at Caythorpe suggests that the land holding pattern remained static throughout the duration of settlement. Furthermore, the presence of a *grubenhaus* and early Anglian pottery indicates that the settlement appeared to continue into the post-Roman period. The presence of post-Roman settlement deposits superimposed on a later Roman settlement is highly significant and supports the findings of Powlesland at West Heslerton in the Vale of Pickering (Powlesland 1994). Sample excavations on an Iron Age and Roman rural linear settlement close to West Heslerton recorded early *grubenhäuser* on a site that was increasingly under threat from rising ground water. Although the evidence at Caythorpe is somewhat more limited than at West Heslerton, the superficial parallel between the two sites is notable.

The characteristics of the *grubenhaus* recorded in the pipeline corridor conform to the pattern recorded at West Heslerton and other sites of the period. A posthole was recorded at one end of a subrectangular hollow which had been backfilled with refuse, which largely comprised animal bones. In the light of the West Heslerton excavations, rather than a sunken-floored dwelling, it is appropriate to regard this structure as having been a storage building, possibly for grain, with a cavity floor to enable the circulation of fresh air. (Powlesland *Ibid*).

In Field 3600, 1km south of the *grubenhaus,* a posthole structure within the corridor was recorded in association with possible enclosure ditches and a relict stream channel. The subrectangular postholes formed a rectangular plan with an entrance on the long side and a cross wall close to one of the end walls. At West Heslerton more than 75 posthole structures were examined (Powlesland *ibid*) and similar structures have been recorded at Cowdrey‘s Down, West Stow, Chalton and Mucking where a striking consistency with respect to both the structural details and to the absence of internal deposits has been recognised.

Prior to the geophysical survey undertaken in advance of the pipeline corridor, the existence of a settlement in Field 3600 was unknown, and at the time of writing its full extent has yet to be determined. It is clear from the survey, however, that a concentration of anomalies representing settlement activity is present to the north of the posthole structure (Fig. 14). From the limited evidence available from a single structure it is not possible to establish whether, for example, the zones of activity identified within the settlement at West Heslerton apply to the

Caythorpe settlement. However, on the basis of the enclosure ditch to the east and south of the structure it remains possible that the building was situated within Powlesland's category of an enclosed high status zone of settlement.

Although the *grubenhaus* and posthole building were the only such structures within the corridor the finds evidence suggests occupation in the earlier part of the Anglian period. Both the pottery assemblage recovered from the vicinity of the *grubenhaus* and the iron knife within a posthole of the posthole building structure can be placed in the 4th to 7th centuries AD. This only just accords with the date range of 690-945 cal. AD of bone from one of the postholes. If, as has been observed by Powlesland *(ibid),* true posthole buildings were superseded by post-in-trench structures in the Middle Saxon period, it is likely that the earlier end of the date range is more applicable.

The relatively low quantity of medieval deposits recorded in the corridor was in contrast to the quantity of medieval pottery sherds recovered from fieldwalking. Almost 63% of all the pottery collected from surface distributions was of medieval date, with a concentration of material in Field 3600. The route of the corridor in this field was amended making it difficult to assess whether the pottery was derived from manuring activity or from *in situ* deposits. Further to the north, in Fields 3086 and 2970, excavation confirmed that the low number of medieval sherds reflected the paucity of medieval features within this area of the corridor. Such a low density of medieval features in the locality of Low Caythorpe medieval village has important implications for the distribution of settlement activity outside the confines of the village enclosure.

SPECIALIST REPORTS

Introduction

The format of the specialist reports has been standardised so that catalogue entries appear before the discussion. At the end of each catalogue entry the first italicised number refers to the feature from which the object was recovered. The number in square brackets refers to the deposit and, where appropriate, the final number refers to the group which the feature was associated with.

Although most of the catalogue entries are arranged in ascending order of the context numbers occasional entries are out of sequence in order to accommodate the illustrations. For the prehistoric and Roman pottery reports the catalogue entries describe only those sherds which were selected for illustration by the subject specialist. Archive catalogues for these assemblages and other material have been deposited with the site archive at The Hull and East Riding Museum. A summary of several archive reports has been included in this section.

PREHISTORIC POTTERY

by T.G. Manby

Prehistoric pottery was recovered from 70 contexts, ranging from associated sherd groups representing many vessels, down to some small individual fragments of a residual character. A full catalogue with all fabric descriptions has been prepared for the excavation archive. For the purposes of this report only significant sherds have been illustrated, although a greater number of sherds may be included in the vessel description. The material has been arranged in broadly chronological groupings.

Early Neolithic

1. Rim, Towthorpe style bowl. Overhanging rim, wall shows decreasing thickness downwards. Compact laminated fabric, fine sand and voids left by the solution of temper. Dark brown surfaces and grey core. 5-8mm wall thickness. *Pit 1341 [1342]; Group 1340.*
2. Grimston style rim with externally bevelled lip, hollow interior. Fourteen small sherds. Hard compact with scattered white flint temper >4mm. Dark brown exterior, grey interior. *Pit 1370 [1369]; Group 1370.*

Middle Neolithic

3. Thirty-three unweathered sherds of a reconstructable bowl, rim diameter 290mm. Broad outbent rim, deep neck above sharp shoulder angle, hemispherical body and turn into rounded base. Brittle fabric with much quartz sand and scattered fragments of flint and some quartzite >10mm. Reddish brown passing down to bright orange on exterior, dark-grey interior and core. Decorated with imprints made by the articular surfaces of a bird bone in rows along rim interior and lip. Neck plain, horizontal rows of large imprints across the body, lower down increasing gaps between rows and plain towards the turn of the base. Horizontal smoothing marks across interior. *Pit 1234 [1235]; Group 1230.*
4. Rim of open bowl or barrel-shaped jar with simple thick lip. Coarse laminated fabric, much quartzite temper and igneous rock fragments >10mm erupting through surfaces. Dark brown exterior, brown interior, dark-grey core. Criss-cross lines on exterior incised with a sharp point. *Pit 1287 [1288]; Group 1250.*
5. Rim and two sherds of a Rudston style shouldered bowl. Rim everted with internal bevel, concave neck and shoulder. Laminated fabric with much fine sand, some rounded quartz and white flint >3mm. Dark brown surfaces, dark-grey core. Sharp point used for herring-bone pattern on bevel, bold diagonal strokes on upper part of exterior, verticals on body. 8mm wall thickness. Remains of a perforation through shoulder wall, post firing. *Pit 1392 [1404]; Group 1420.*

Beaker

6. Rim with rounded lip, a base fragment and four wall sherds, the best preserved showing a compact surface with closely spaced horizontal cord lines (?six twists to 10mm). Much coarse sand temper (including angular quartzite, dolerite grains, scarce fossil shell). Reddish surfaces, orange core. 6mm wall thickness. *Hearth 1395 [1407]; Group 1420.*

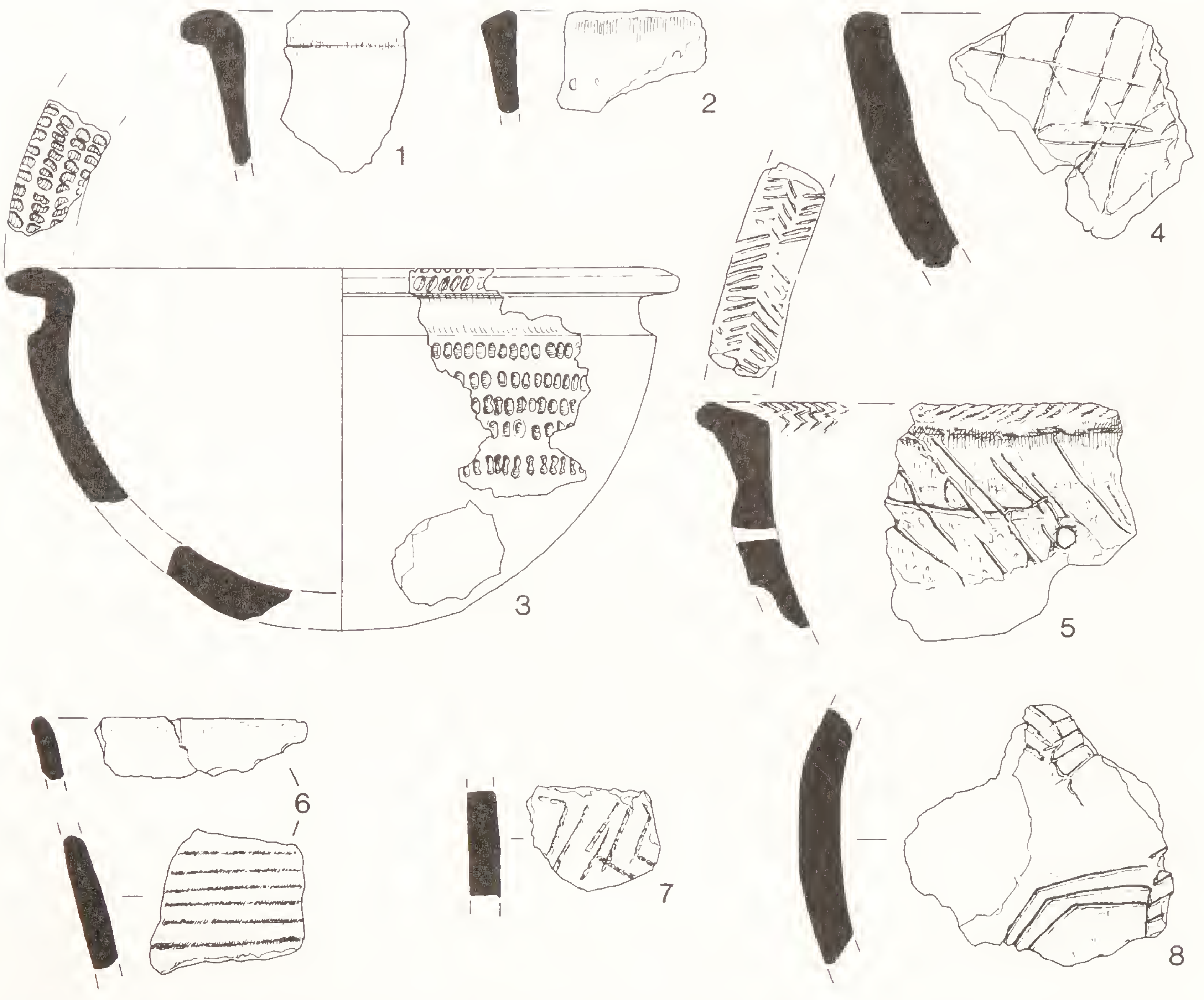

Fig. 15. Early Neolithic vessels 1-2; Middle Neolithic vessels 3-5; Beakers 6-8 (scale 1:2 except for 3 at 1:4).

7. Small Beaker sherd. Hard compact, sand tempered, buff exterior, grey interior. Sharp comb lines in herring-bone arrangement (five teeth to 10mm). 7mm wall thickness. *Pit 3131 [3130]; Group 3130.*
8. One sherd, hard heavy compact fabric with sparse sand temper. Buff surfaces with dark-grey patch on exterior, dark-grey core. Sharply incised lines in herring-bone arrangement and edge of a possible hatched lozenge. 8-10mm wall thickness. *Pit 3541 [3540]; Group 3205.*

Grooved Ware

9. Collared rim and wall sherds of a large bucket-shaped pot. Deep heavy collar, flat-topped rim 330mm in diameter. Compact heavy fabric, scattered large calcite fragments >10mm and sand temper. Brown surfaces, dark-grey core, interior smoothed over. Collar decorated with horizontal grooves, intervening ridges have alternating finger-tip notching along upper and lower edges to form false relief moulding. Body has vertical columns of paired finger-tip and thumb pinching, limited by three shallow horizontal grooves. Some plain fragments likely to be from lower body. 13mm wall thickness. *Pit 050 [051, 062].*
10. Base angle and wall fragments, 110mm diameter base. Compact fabric with scarce calcite fragments >5mm and sand temper. Buff with orange-toned surfaces, dark-grey core. Incised decoration forming horizontal herring-bone. 7mm wall thickness. *Pit 050 [051, 062].*

11. Wall sherd. Compact heavy fabric scattered chalk fragments >5mm and sand temper. Buff exterior, brown interior, grey core. Shallow horizontal grooves on exterior, smoothed compact inner surface. 8-10mm wall thickness. *Pit 050 [062].*
12. Body sherds of a bucket-shaped vessel. Porous fabric, sand, some voids and scattered igneous rock fragments >12mm. Buff surfaces, dark-grey core. Grooves forming vertical herring-bone patterning above zone of horizontal grooves. 10mm wall thickness. *Pit 050 [051].*
13. Fifteen walls sherds. Brittle fabric with much igneous rock temper >5mm and sand. Buff exterior, brown-buff interior, grey core. Horizontal grooves and well-spaced incised lines probably in herring-bone pattem. 8-10mm wall thickness. *Pit 050 [051].*
14. Rim and some joining wall sherds of a bucket-shaped vessel. Porous fabric, sand, some voids and scattered igneous rock fragments >12mm. Buff surfaces, dark-grey core. Horizontal grooves below rim, grooves forming vertical herring-bone patterning below. 10mm wall thickness. *Pit 050 [051].*
15. Three pieces of base angle and two wall sherds. Compact hard fabric with sand, scarce flint and igneous rock fragments >4mm, scarce chalk >8mm and a pebble >6mm. Reddish exterior with buff tones, brown interior, grey core. Incised vertical herring-bone pattern. 8mm wall thickness. *Pit 050 [051].*
16. Base and wall sherds. Brittle fabric with much igneous rock >5mm and fine sand temper. Buff exterior, brown-buff interior, grey core. Decorated with vertical incised lines. 8-10mm wall thickness. *Pit 050 [062].*
17. Rim and wall sherds. Inward curving rim with internal bevel. Compact porous fabric with coarse sand temper. Dark grey. Shallow lines incised with blunt point. Horizontal lines divided by groups of diagonal lines. Carbon coating exterior of one sherd. 11mm wall thickness. *Pit 060 [61].*
18. Wall fragment with cordon. Heavy compact fabric with coarse and sparse flint temper >4mm. Dark grey. Incised herring-bone pattem below cordon. 9mm wall thickness. *Pit 060 [061].*
19. Base angle, evidence of outsplaying wall. Friable fabric with scarce small chalk temper. Buff exterior, grey core, interior scaled-off. Diagonal grooves and parallel line of indistinct tooling. *Pit 060 [061].*
20. Wall sherd. Compact, fine sand temper and a flint fragment >4mm. Orange-brown exterior, grey interior. Diagonal grooves flanking traces of vertical rib with finger-nail notching. 10mm wall thickness. *Pit 060 [061].*
21. Base angle and four sherds. Thick porous fabric, sand tempered. Brown exterior, dark-grey interior. Wall thickness >15mm. All weathered. *Pit 060 [061].*
22. Rim, small fragment, lip folded over internally. Compact harsh feel from fine sand temper. Brown, darker tones. 5mm wall thickness. *Pit 1001 [1002].*
23. Small body fragment with vertical moulded strips. Compact, fine sand, scattered crushed dolerite and fine sandstone pebbles >12mm. Buff, orange buff exterior. 12mm wall thickness. *Pit 1001 [1002].*
24. Base angle 185mm diameter, slight rounded foot. Compact, sand and scattered igneous rock fragments >4mm, erupting through interior surface. Orange-buff, brown interior. Vertical slashing on exterior made with blunt point. Incised criss-cross lines on base made with sharp point. 6mm wall thickness. *Pit 1001 [1002, 1003].*
25. Joining fragments of vessel wall. Heavy coarse fabric, profuse crushed igneous rock temper - ?dolerite, >5mm, also sand. Orange, harsh exterior with protruding grits, smoothed interior. Pair of applied vertical strips. 11mm wall thickness. *Pit 1001 [1003].*
26. Fragmentary, joining base sherds, lower body profile and isolated body and rim fragments. 140mm base diameter. Bevelled rim formed by folding over lip. Hard compact with much fine sand and scattered rock fragments, dolerite >7mm and occasional

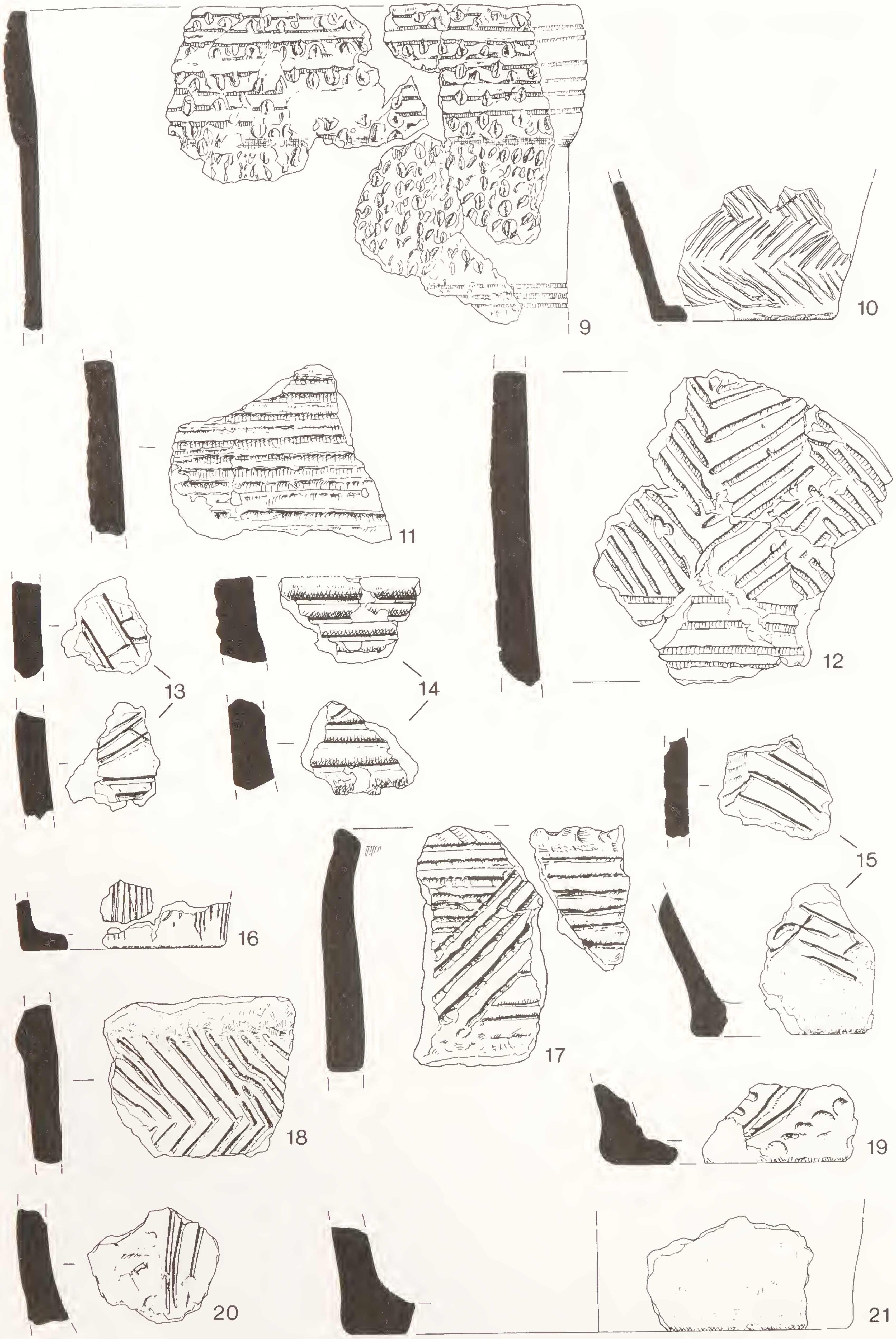

Fig. 16. Grooved Ware vessels 9-21 (scale 1:2 except for 9, 10, 16 at 1:4).

flint; harsh to surfaces. Orange-buff exterior, light-grey interior. Decorated with vertical rows of paired finger and thumb-nail jabs down exterior. 7mm general wall thickness. *Pit 1001 [1002, 1003].*

27. Rim fragments with internal bevel resulting from internal folding downwards of lip. Eroded surfaces? Hard gritty with profuse coarse sand temper with stone fragments including dolerite >9mm. Reddish-brown exterior, grey internally with horizontal smoothing on interior. Horizontal rib below rim on exterior and traces on ribs and grooves on other sherds, all modelled up from wall. 7mm wall thickness. *Pit 1001 [1002, 1003].*
28. Fragmentary ?bowl, convex profile. Two rims and 25 wall fragments, some joining sherds. Hard comb lines. Incurving at rim with simple internal bevel. Hard compact fabric with profuse fine sand, scattered white flint >5mm and grog. Reddish and brown toned exterior, smoothed reddish-brown interior, grey core. Incised diagonal lines on rim bevel. Exterior has fine shallow lines made by random drawing of comb drawn across surface (a 10-toothed comb), some sherds with wider spaced lines and others plain. 7mm wall thickness. *Pit 1004 [1005]; Group 1020.*
29. Two rim and 10 body fragments of a fine quality open bowl. Distinctive hard fine compact fabric, showing some colour variation. Rim folded down to form deep bevel. Orange to orange-brown exterior, brown smoothed interior, dark-grey core, much fine sand temper with scarce flint fragments >2mm. Decorated using horizontal roller-like tooling, 6mm wide with serrated teeth, internally along rim bevel and in a row under. Two sherds show a vertical row and a horizontal row on a third. Exterior has zone of horizontal cord lines under lip, below a zone of the roller tooling bounded by horizontal lines, alternating diagonal line groups by incision towards the base. 7mm wall thickness. *Pit 1004 [1005]; Pit 1016 [10171]; Pit 1032 [1033]; Group 1020.*
30. Rim sherd, simple rim with narrow internal bevel. Hard compact fabric with fine sand temper, occasional flint and stone fragments >2mm. Uniform orange. Finger-tip notching along lip and below; incised lines on exterior as a herring-bone pattern limited by pair of vertical lines with notching in between. 8mm wall thickness. *Pit 1004 [1005]; Group 1020.*
31. Two joining base sherds and two crumbs of large splay-walled vessel. Thick heavy fabric with fine sand temper, white flint >4mm, grog and angular voids. Brick red surfaces, dark-grey core. Applied vertical strip finger moulded, flanked by groups of diagonal lines dividing panels infilled with stick-end imprints. llmm wall thickness. Base 200 - 205mm diameter. Orange exterior, orange-red to grey interior, grey core. *Pit 1004 [1005]; Group 1020.*
32. Single sherd from lower body of a large vessel with splayed walls. Coarse brittle fabric with scattered white flint >4mm. Brown surfaces, dark-grey core. Grooved decoration, horizontal lines with zone of herring bone below. Modelled with round-sectioned tool, ridge tops smeared over. 11 - 15mm wall thickness. *Pit 1004 [1005]; Group 1020.*
33. Single sherd from lower body of a large vessel. Heavy laminar fabric, fine sand, brown surfaces, grey core. Decorated on exterior with sharp point in herring-bone pattern. 13mm wall thickness. *Pit 1004 [10051]; Group 1020.*
34. Single sherd of a thin-walled vessel. Hard compact, fine sand with some white flint >2mm and stone. Shallow incised lines. 6mm wall thickness. *Pit 1004 [1005]; Group 1020.*
35. Single sherd. Hard compact, fine sand tempered fabric. Orange-toned reddish exterior, grey interior. Incised parallel lines on exterior. 7-9mm wall thickness. *Pit 1004 [1005]; Group 1020.*
36. Single sherd. Compact fabric with fine sand, some white flint and opaque quartzite >2mm. Orange-buff exterior, brown interior, dark-grey core. Incised diagonal lines. 10mm wall thickness. *Pit 1004 [1005]; Group 1020.*

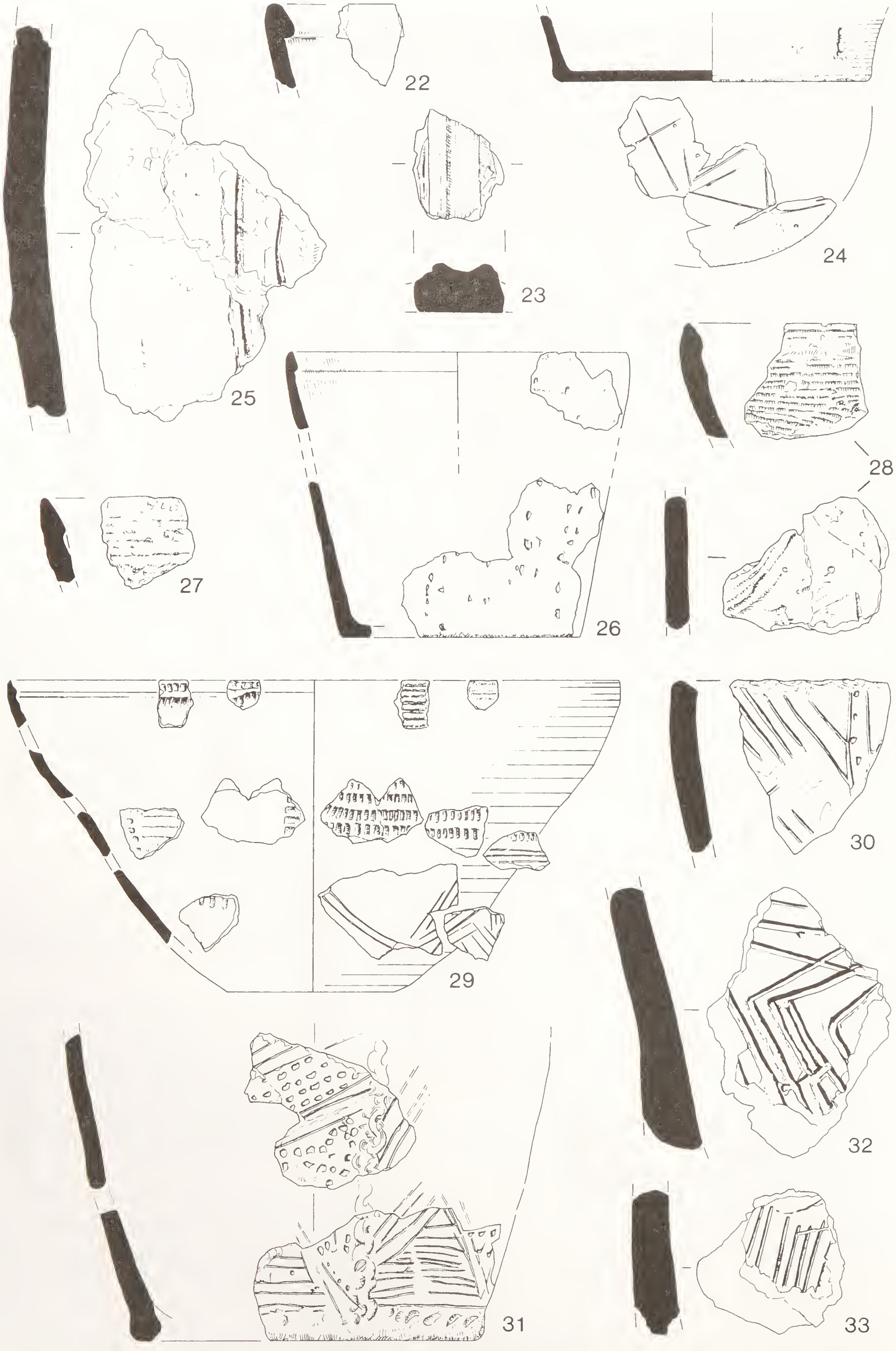

Fig. 17. Grooved Ware vessels 22-33 (scale 1:2 except for 24, 26, 29, 31 at 1:4). The sherds of no. 29 are arranged on an idealised reconstruction of the vessel form.

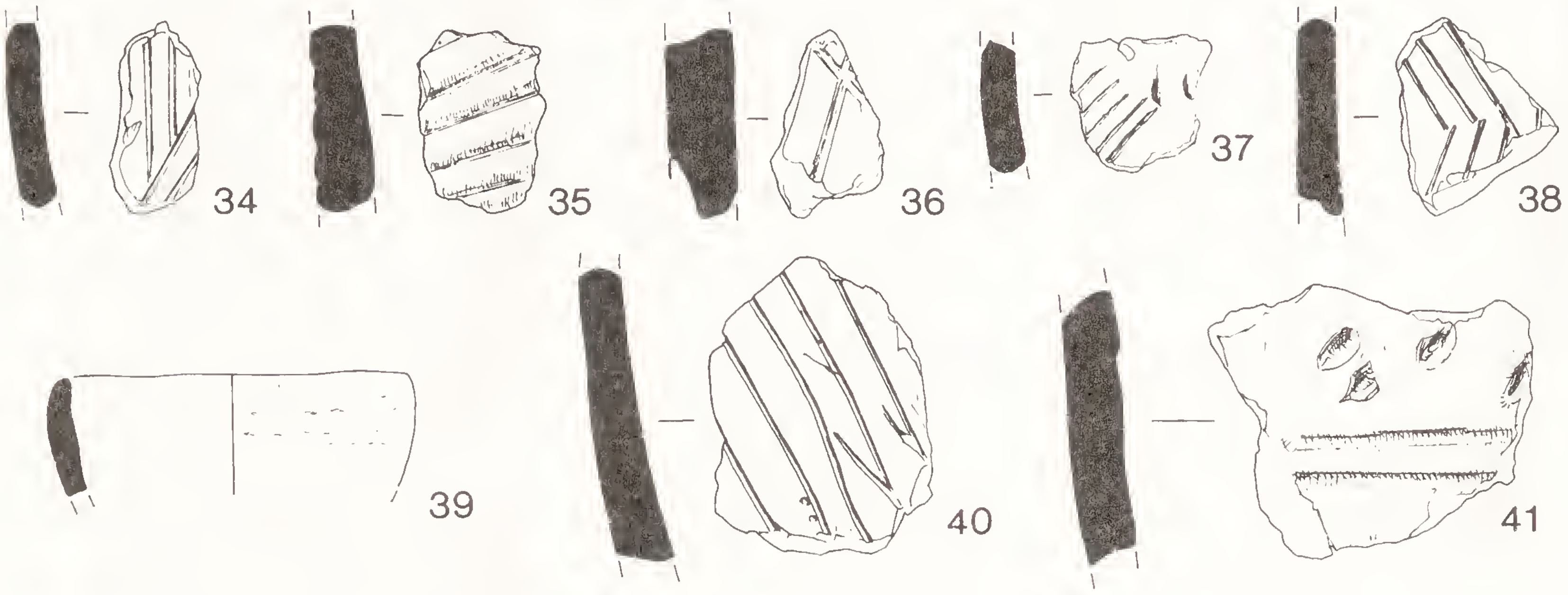

Fig. 18. Grooved Ware vessels 34-41 (scale 1:2).

37. Single sherd. Compact, fine sand, scarce chalk, flint and quartzite. Buff. Incised diagonal lines and finger-nail impressions. 6mm wall thickness. *Pit 1004 [1005]; Group 1020.*
38. Single body sherd. Hard compact, much fine sand temper. Brown exterior, dark-grey interior. Sharply-incised lines forming herring-bone pattern. 7mm wall thickness. *Pit 1016 [1017]; Group 1020.*
39. Two rim sherds of a small cup, *c.*60mm diameter rim. Thin-walled, rough fabric with much fine sand including some flint and dolerite. Dark grey. Horizontal thumb-nail impressions below lip on one sherd. 3mm wall thickness. *Pit 1016 [1017]; Group 1020.*
40. Single body sherd. Compact fabric, fine sand and some voids. Buff exterior, grey interior. Shallow incised diagonal lines across exterior. Traces of carbon deposit on interior. 8mm wall thickness. *Pit 1016 [1017]; Group 1020.*
41. Three wall sherds. Hard compact sand-tempered fabric. Buff exterior, dark-grey interior. Paired diagonal finger and thumb-nail pinching. Shallow horizontal lines towards lower part of the body. Traces of carbon layer on inner surface. 8 - 10mm wall thickness. *Pit 1032 [1033]; Group 1020.*

Bronze Age

42. Biconical vessel, upper profile reconstructable. Rim diameter 305mm. Inturned rim, moulded cordon, splayed walls. Compact fabric with profuse crushed dolerite fragments >6mm erupting through smoothed-over surface, harsh to the touch. Exterior, dark grey changing downwards to brown and orange-buff. Buff and brown interior, grey core. Decorated between rim and cordon with well-spaced diagonal comb impressions, round teeth - six per centimetre. *Pit 1070 [1072, 1121]; Pit 1073 [1074]; Group 1500.*
43. Sherds of a Biconical vessel. Rim diameter about 300mm, inturned rim with rounded lip and moulded cordon. Very distinctive fabric tempered with coarse weathered quartz fragments, harsh surfaces, brown, darker-toned exterior, grey core. Boldly-incised decoration using broken ended tool, rough diamond pattern between single horizontal lines above cordon. *Pit 1070 [1072, 1121]; Group 1500.*
44. Rim, open bowl with slight shoulder and short neck, internal rim bevel. Rough hard structured fabric, profuse coarse sand and scattered igneous rock fragments >10mm. Dark-brown exterior, lighter-brown interior. Evidence of row of finger-nail? jabs below lip and vertical strokes made by sharp point running down from shoulder. 9mm wall thickness. *Pit 1073 [1074]; group 1500.*
45. Two rim fragments, body sherd and flake. Thick, flat-topped rim with rounded external edge to lip. Rough flaky fabric with scattered igneous rock fragments >7mm and some

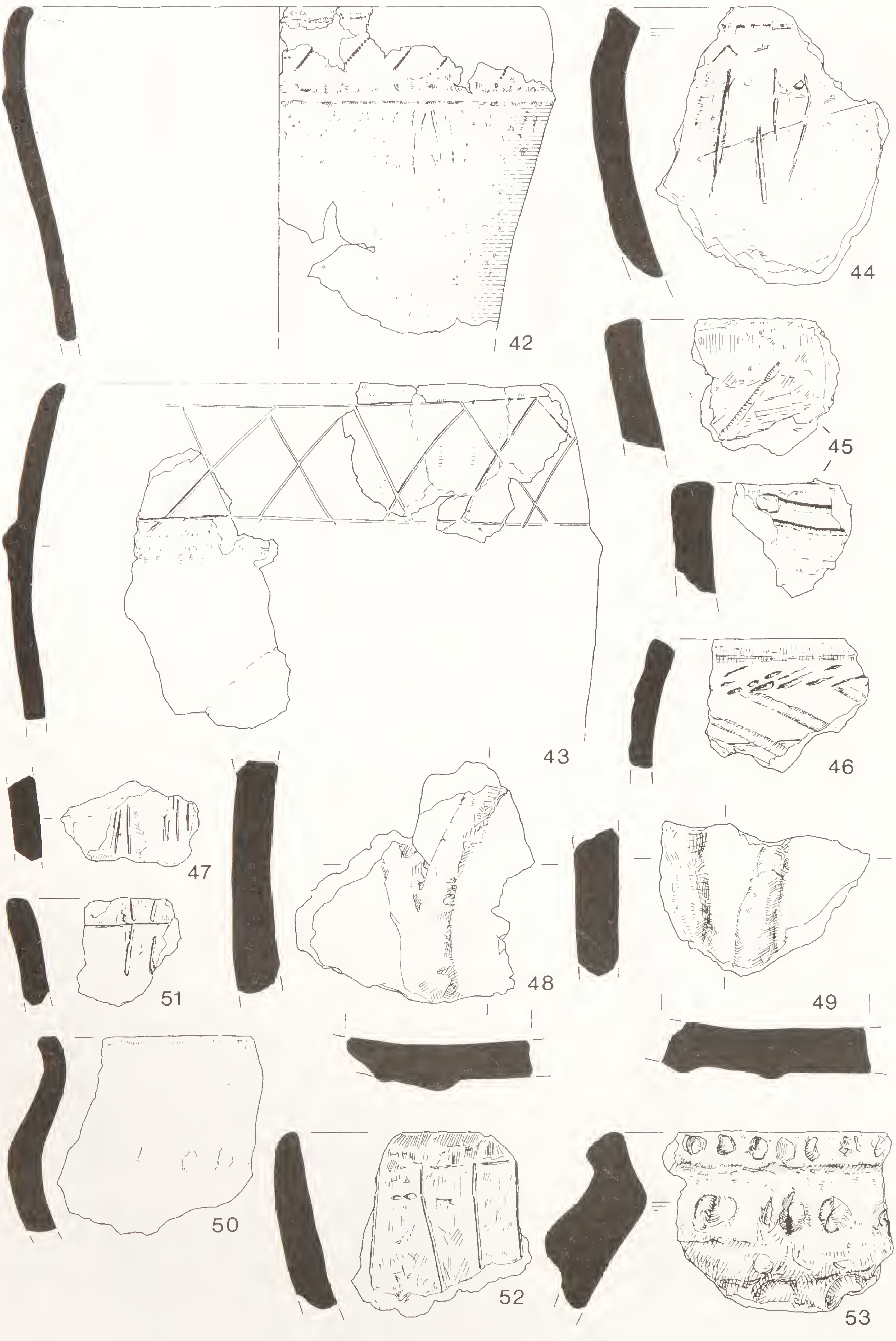

Fig. 19. Bronze Age vessels 42-53 (scale 1:2 except for 42, 43 at 1:4).

sand. Brown with darker toned surfaces, grey core. Shallow incised lines made with broken point on exterior. 11mm wall thickness. *Pit 1073 [1074, 1077]; Group 1500.*

46. Rim with internal bevel and slight hollow under lip. Hard compact fabric, scattered calcite temper >8mm. Brown, dark-grey core. Decorated on exterior with double row of diagonals made by fine point below rim, below row of opposed diagonals made by a broad rough point and more widely spaced. Most of exterior blackened by carbon layer. 13mm wall thickness. *Pit 1073 [1077]; Group 1500.*
47. Wall sherd, flaky fabric, scattered calcite >4mm smoothed brown exterior, dark-grey interior. Decorated with pairs of fine incised line. Remains of carbon layer on interior. 8mm wall thickness. *Pit 1073 [1077]; Group 1500.*
48. Sherds and two flakes of a large vessel, weathered exterior. Coarse granular fabric, fine sand, rounded quartz grains and white flint >5mm. Large voids in surface >10mm. Orange with reddish-toned exterior, brown to grey-toned interior, dark-grey core. Low moulded ridges badly eroded, horizontal, vertical and arcs remain. 13mm wall thickness. *Hearth 2041 [2030].*
49. Sherds and four flakes including interior of a rim, its exterior split off. Compact fabric sand temper also some voids, flint and stone temper >3mm. Orange exterior, brown interior and grey core. Applied strip decoration, one sherd has a vertical and an arc, the other a cordon mostly broken off. 12mm wall thickness. *Hearth 2041 [2030].*
50. Rim of a carinated bowl, slightly-splayed rim, flattened lip. Medium fabric with surface voids left by solution of angular temper (calcite), much fine quartz sand. Dark reddish to orange and grey-toned exterior, orange-buff interior, dark-grey core. Row of shallow finger-tip notching along the carination. 8mm wall thickness. *Pit 2090 [2091]; Group 2130.*
51. Rim upright, internal bevel. Hard coarse sand and crushed stone >8mm erupting through surfaces. Light-grey, buff exterior, interior grey. Incised horizontal line below lip with verticals at intervals. 8mm wall thickness. A small body sherd in same fabric. *Pit 2604 [2605]; Group 2608.*
52. Two rim and one body sherds, externally rounded lip. Coarse flaky structure with much crushed dolerite temper >4mm, erupting through surfaces. Dark grey with external brown tones. Shallow horizontl and vertical incised lines made with broken-ended stick. llmm wall thickness. *Pit 2606 [2607]; Group 2608*
53. Rim of Enlarged Food Vessel profile, thick rim with concave internal bevel, heavy neck-ridge. Heavy slightly-structured fabric, scattered grog and fine sand temper. Dark-grey, brown-toned surfaces. Outer face of rim has shallow tool imprints, finger and thumb imprints on neck. *Ditch 3545 [3544].*

Early Iron Age

54. Rim, thick upright with external edge of lip pulled over. Heavy laminar fabric, profuse fine sand and scattered white quartzite fragments >3mm. Brown-toned surfaces, grey core. Surfaces harsh to the touch with fissuring. >llmm wall thickness. *Pit 044 [045].*
55. Rim and most of base of a jar with high round shoulder and upright rim, 155mm diameter. Base 80mm diameter. Structured fabric with profuse calcite temper >4mm, smoothed exterior. Brown toned exterior, dark-grey interior. Carbon layer over interior. 6mm wall thickness. *Grave 1008 [1010].*
56. Rim fragment, beaded rim with internal bevel. Hard laminated fabric tempered with much fine sand and scattered igneous rock fragments >2mm. Dark-grey, orange-toned on bevel. 6mm wall thickness. *Slot 2300 [2301]; Group 2315.*
57. Outsplayed rim with externally-bevelled lip. Hard, calcite-tempered, dark-grey fabric, smoothed surfaces. *Slot 2300 [2301]; Group 2315.*
58. Fragmentary jar, 120mm diameter rim, 90mm diameter base. Beaded rim with internal bevel, high rounded shoulder, slight moulded foot. Hard laminated fabric, many calcite

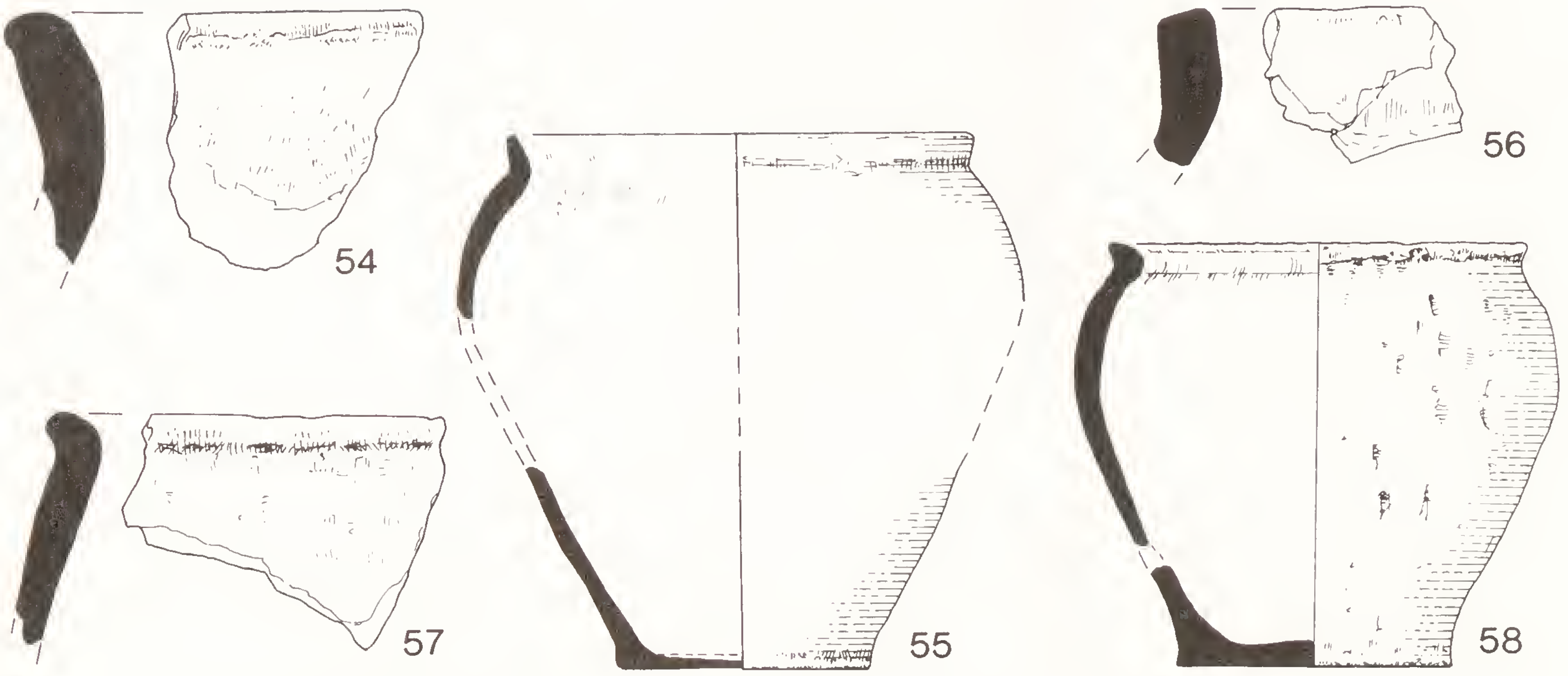

Fig. 20. Early Iron Age vessels 54-58 (scale at 1:2 except for 55, 58 at 1:4)

fragments >10mm erupting through surfaces and much fine sand, dark-grey exterior with brown toned areas orange interior, grey core. 7mm wall thickness. *Slot 2300 [2301]; Group 2315.*

Discussion

Pottery from the Caythorpe gas pipeline extends over a broad chronological range but there is an emphasis across the late-3rd and early-2nd-millennia BC; the Grooved Ware and Biconical Urn groups being of particular importance. There are no complete vessels, only sherd groups, and there is no stratigraphical association evident between the individual styles. Only five of the previous Rudston Wold sites provide such relationships; Rudston style Peterborough Ware sites had, in the same filling layer, Clacton style Grooved Ware, a comb-decorated Beaker at the 2nd West Reservoir Site (Manby 1975, 38-9), and a piece of Durrington Walls style Grooved Ware at Carnaby Top Site 19 (Manby 1975, 41-44). At Carnaby Top Site 12 some small weathered Peterborough Ware sherds occurred in the filling of three pits with Woodlands style Grooved Ware, AOC, comb and incised Beaker sherds (Manby 1974, 26-27). Grooved Ware overlaid the fill of a Peterborough Ware pit at North Carnaby Temple Site 5 (Manby 1975, 44-5).

All the ceramic material contains varieties of tempering agents that would have been available within a 2km radius of the find spot, including some igneous rocks that are present in the Devensian till series of Holderness. The sole exception to this evidence for local production is vessel 50 that has the fabric characteristics of a distant clay source.

Neolithic styles

The Neolithic styles are already well known from pit groups excavated by Messrs C. & E. Grantham of Driffield along the northern side of Rudston Wold (Manby 1974 & 1975). The new sites extend the distribution of the various styles, particularly south of the Woldgate, and Grooved Ware has been added to the site concentration around the southern terminal of Cursus 'A'. The earlier Neolithic plain wares (1 and 2) parallel the previous Grimston (Manby 1975, 28-31) and Towthorpe assemblages from pit groups and barrow sites along Rudston Wold (Pacitto 1972, 12-20).

The distinctions in fabrics between the earlier Neolithic traditions of the 4th millennium BC, and those of the later Neolithic Peterborough, Grooved and Beaker wares recur across much of the British Isles. Further distinctions in shape and decorative treatment provide the basis for defining stylistic groups of a regional or chronological character. Amongst these is a Rudston style of the Peterborough tradition in eastern Yorkshire (Manby 1988, 69, Fig. 14.4) to which 3, 4 and 5 can be assigned. The style's development from the earlier Ebbsfleet style across Yorkshire and the East Midlands during the later 3rd millennium BC paralleled the Mortlake and Fengate styles of southern England (Manby 1988, 52 & 67-69). Typologically early is 3, a shouldered bowl with an outbent rim of a slender profile decorated with rows of close set impressions like those of Rudston Wold Site 1 (Manby 1975, 33, Fig. 7). The simple profile and casual criss-cross incised decoration of 4 is paralleled at East Reservoir Site 8 associated with developed T-rimmed and flat-based pottery (Manby 1975, 39-40, Fig. 12). This evolved aspect of the Rudston style also appears in 5 with its bevelled rim and incised herring-bone patterning that are favoured elements in the late assemblages of North Carnaby Temple Site 6 and Carnaby Top Site 19 (Manby 1975, 41 & 45) where some Fengate style characteristics are present.

The chronology of the Peterborough Ware tradition is only broadly understood, mainly because of a scarcity of radiocarbon determinations. In contrast Grooved Ware has associated determinations between 2910-1760 calibrated BC, with the majority between 2580-1980 calibrated BC (Healy 1988, 72-3). The two most extensive dating series relate to the Durrington Walls style in southern England, associated with the great henge monument of Mount Pleasant (Wainwright 1979, 186 & 236) and flint mining at Grimes Graves (Burleigh *et al* 1979, 46). Grooved Ware from the Caythorpe pipeline, with the exception of a single Clacton style tub (31) from pit group 1020, all relates to the Durrington Walls style or sub-style as defined by Wainwright and Longworth (1971, 240-2, Fig. 91). However, there are significant divergencies between the new assemblages and those of North Carnaby Temple and Caythorpe Site 1, only 1-2kms to the east.

The Grooved Ware can be considered from four pits/groups: (a) pit 050, (b) pit 060, (c) pit 1001, and (d) pit group 1020 (pits 1004, 1016 and 1032).

a) Some 11 vessels, of which eight are illustrated (9-16) are of simple bucket or barrel shapes. Most are decorated with grooved herring-bone patterning, either vertical (12, 14 and 15), or horizontal (10, 13). Vertical incised lines, alone as on 16 or in combination with finger-tip rustication, are less common. Number 9 is notable for the intensive vertical chain-like rustication on the body and the finger-tip notching applied to the edges of the horizontal grooves on the collar. The deep collar can only be paralleled at Woodhenge, Wiltshire, where there were three like-profiled vessels with deep collars bearing simple horizontal lines and on the body were alternating incised panels, some infilled with rustication (Cunnington 1929, Pl. 23.1; 33.51 & 37.85).

At least seven vessels (of which five are illustrated; 17-21) are represented by sherds of a contracted mouth jar (17), a girth cordon (18), and a vertical applied strip (20). Grooved horizontal, diagonal, herring-bone patterns are all present with some infilling by stab marks (19). All are indicative of the characteristic Durrington Walls style jars with applied cordons, pendant strips with hatched infilling comparable with North Carnaby Temple (Manby 1974, 46 & 81, Fig. 19, 23 & 29).

(c) At least six vessels (22-27) comparable to (b) especially in the plastic element of applied strips, both horizontal and vertical (24 is single and 25 paired), and the ribs modelled up from the surface (27). But pieces are too small to establish if the verticals were pendant from cordons or alone between rim and base in the manner of open bowls at North Carnaby Temple (Manby 1974, 48, Fig. 20. No. 45-6). There is a rustication element that was the sole decoration on the tub-shaped vessel (26) spaced in vertical rows. The same effect was attempted on the body of 24 and a point was used to form criss-cross lines across the base - making it a unique feature.

d) Some 13 vessels (28-40) scattered between three pits provided the widest range of shapes and decorative techniques amongst the present assemblages. Notably two open globular bowls in finer quality hard fabrics; the first (28) embellished with a comb producing both rows of short strokes and longer strokes in converging directions across areas of body. The second (29) is very fragmentary, decorated with cord, incised lines and roller stamping that was also applied to the interior both radially and concentrically. Internally decorated open bowls are distinctive of some Durrington Walls style assemblages, characteristically in finer fabrics and with incised decoration of reserved and infilled geometric and radial motifs. But at Lawford, Essex, of the 12 internally decorated bowls, there is one with roller impressions (Smith in Shennen *et al,* 174, P95). Two internally decorated bowls, of open globular and conical profiles, at Grimes Graves 1971 Shaft are associated with the radiocarbon date of 3781 ± 67 BP (BM-778) (Mercer 1981, 23, Fig. 22-3). The various associations of these distinctive bowls have been discussed by Cleal, particularly their context at the henge monuments at Wyke Down, Durrington Walls, the Sanctuary, Overton, and Marden (Cleal 1991, 142-3). A recurrence of “ritual” type depositions is established, but these are not universal associations and the same can be said for other distinctive features amongst the southern Durrington Walls style assemblages, such as circular motifs.

There are grooved and incised chevron patterns (32, 33 and 38), and parallel lines that are possibly fragments of these motifs (29, 34-36 and 40). Incised lines combined with finger-tip notching or rustication are presented on 30, 37 and 41, and, interestingly, on the lower body of the large jar 31. This has applied pendant strips moulded with the finger tip to a wavy outline, the intervening infilling consisting of alternating zones of incised lines and imprinting with the tip of a tool. The latter is a characteristic element of the Clacton style (Wainwright & Longworth 1971, 236-7, Fig. 89).

Minor decorative techniques in this pit group are the use of cord impressions and applied strips. The undecorated element is confined to 39, a small cup and a rare form for all Grooved Ware styles.

All Grooved Ware pit groups from the Caythorpe pipeline are otherwise assignable to the Durrington Walls style but there is a strong component of simple shapes, and grooved and incised patterning in the Clacton manner. This same combination is present in the pottery assemblage at the Storey Road subset Area I at Peterborough (Pryor 1978, 69-93, Fig. 37-41) with a flint industry of the Durrington Walls tradition (Pryor 1978, 104-143, Fig. 43-49). The elements characterising the Durrington Walls style at North Carnaby Temple (Manby 1974, 79-81), of some 28% undecorated vessels, applied cordons and strips 34%, cord impression 16% and incised decoration 17%, are not paralleled in the pipeline assemblages where undecorated pottery is scarce in the admittedly less numerous vessel totals. An aspect of the pipeline sites is the higher ratio of bases to rims.

Bronze Age

The Early Bronze Age extends over the early 2nd millennium BC when the final developments of the Peterborough styles, Grooved Ware and Beakers continue from the late 3rd millennium until replaced by evolving Food Vessel and Collared Urn types in their burial role.

Number 53 has the profile of a ridged form of Food Vessel, in size attributable to the Food Vessel Urn series (Cowie 1978, 20-23). It shows the regionally favoured technique of circular " stamps" or impressed decoration along the rim and ridges (Cowie 1978, 24 & 28 YOR1, 2 & 6-10), and it is unusual for the Food Vessel tradition to have finger-tip impressions. Food Vessel urns accompanying cremation burials are assignable to Burgess's Early Bronze Age Fargo Phase *c.*2000-1800 BC. (Burgess 1986, 350).

The term Biconical Urn has been applied to a widespread series of urns within the complex cremation traditions of the earlier Bronze Age across eastern and southern England (Burgess 1980, 94). This is a regionally diverse series showing in some instances affinities with other contemporary pottery traditions - Food Vessels, Collared Urn and Cordoned Urn (ApSimon 1972). Pottery of the second half of the 2nd millennium from pits 1070 and 1073, and 2602 and hearth 2041 is assignable to the Biconical Urn series. The most extensive assemblage has the two barrel-shaped jars with shoulder-like cordons (42-43) with rims of further bowls and jars (44-47) in a distinctive stone-tempered fabric.

The Northern Biconical Urns of Yorkshire, and the east Midlands, to which the Caythorpe pipeline finds belong have a limited range of shapes and decorative elements. An origin for these can be seen in the restrained Durrington Walls style Grooved Ware represented at North Carnaby Temple and Low Caythorpe rather then seeking any external sources.

Biconical Urns containing cremation burials are known from round barrows on the Wolds and North York Moors of eastern Yorkshire, in Lincolnshire and Leicestershire, and in Derbyshire in cairns and stone circles. Northern Biconical Urns are dominated by barrel-like profiles, their proportions paralleling those of the regional Food Vessels (Apsimon 1972, 148-149) and the distinction between some and the Cordon Urn class can be a matter of fabric character. The broad near globular profiles of the Wessex Biconical Urns and Hilversum Urns are rare amongst the northern urns along with the applied features. Decoration above the cordon is dominated by incision and cord impressions in a limited range of formal motifs, lattice being favoured amongst the northern Biconicals.

A single line lozenge, like that on 43, appears on urns from the northern Lincolnshire sites of Nettleton Top (Field & Leahy 1993, 15, Fig. 2) and Manton (Peacock & Jewitt 1868, Pl. XXI. 3.), and in Derbyshire at Matlock Bridge (Vine 1982, 206, No.524). A lozenge pattern using double lines appears on an urn in Riggs Barrow 35 (Mortimer 1905, 180, Fig. 490; Apsimon 1972, Fig. 5.1) on the western Wolds. The comb decoration on 42 is a scarce technique, it can be compared with the close spaced ornament of the Ramsley Moor urn, Derbyshire (Riley 1981. 4, Fig. 4).

Biconical Urns can also show incised decoration of a less ordered and very casual type (in the manner of 44-45 and 51-52). The applied and moulded ridges of 48-49 can also be placed within the Biconical Urn class by their fabric. Applied work other than the cordons is not a previously recorded feature of northern Biconicals, but arc or horseshoe handles and verticals are characteristic of the southern Biconical Urns, such as those of East Anglia (Lawson 1980, 273, Fig.3 E-F) including domestic assemblages such as Mildenhall Fen (Clark 1936). The same kind of applied features are also present in the Ardleigh Group urns of Essex (Erith & Longworth 1960), that are a regional equivalent of the Deveral-Rimbury tradition.

The series 42-49 and 51-52 are broadly comparable in decorative treatment and fabric character with the assemblage from an occupation site excavated by Messrs. C. & E. Grantham at Rudston Wold Site 3/2 (Field 2343). The pottery is dominated by barrel and bucket forms, cordons are not always present to divide the zone of decoration below the rim from the body and true biconical forms are few. The decoration is by incised lines, cord and comb, using a limited range of motives (Manby 1980, 234, Fig. 8).

Apart from their secondary position in barrows to the collared urns a chronological horizon for the northern Biconical series is provided by an association with faience beads of globular and star-shaped types and a Class la bronze razor at Stainsby, Lincolnshire (May 1976, 77, Fig. 43). A date for the Stainsby urns not earlier than the faience bead accompanied Aldbourne-Edmondsham Wessex burials would place them in the final phase of the Early Bronze Age *c.*1650-1400 BC, radiocarbon date range *c.*1450-1250 bc (Burgess 1980, 110; Burgess 1986, 350). The Wessex burials of the Aldbourne-Edmondsham series also have associations with carved cups of shale and amber, the Hove tree trunk coffin, providing a radiocarbon date of 3189 ± 46 BP (BM-682), had an amber cup with a Camerton-Snowshill bronze dagger. The prototypes for these Wessex cups, including the gold version from Rillaton, Cornwall, have been seen in the pottery handled cups of Reinecke A2 and A2/B date in eastern France, southern Germany and Switzerland (Gerloff 1975; Burgess 1980, 109). Comparison with the out-curving rims of the Wessex amber and shale cups can be made with rim fragments in jet from pit 1026 and Rudston Wold Site 3/2 (Manby 1980, 324, Fig. 8. 9-10). Such a comparison would enable the latter site to be assigned without any difficulty to the Aldbourne-Edmondsham Phase of the Early Bronze Age. For pit 1026 an earlier period might be implied by the Grooved Ware attribution of accompanying pottery, however the weathered condition of the sherds would not provide a firm ground for dating the jet work.

The northern Biconical Urn was clearly the basis for development of the regional later Bronze Age ceramic traditions down to the end of the 2nd millennium BC that were contemporary to the Deverel-Rimbury tradition of southern England.

Late in the 2nd millennium BC new ceramic forms and fine wares were added to the ceramic assemblages around the North Sea Basin creating John Barrett's later Bronze Age Plain Ware tradition (Barrett 1980). This is represented in eastern Yorkshire by the Thwing LBA2 assemblage, that it is succeeded around 900 BC by new forms showing an increasing use of finger-tip decoration, Barrett's Decorated Ware, regionally characterised at Scarborough Castle Hill and for the 7th century BC at Staple Howe.

An 8th-7th-century BC date can be given to vessel 50; this carinated bowl with light finger-tip notching along its girth can be matched at Staple Howe (Brewster 1963, 71, Fig. 36.6). The same bowl form occurred at Scarborough Castle Hill, both finger-tip printed on the carination and plain (Challis & Harding 1975, 22-3, Fig. 42 1 & 16). The macroscopic characteristics of 50 are those of the predominant vesicular fabric of Scarborough Castle Hill (Wardle 1992, 7 & 122-124). Utilising the Oxford Clay of the local Oolite Series from the Tabular Hills west of Scarborough this fabric was a lesser component of the early 1st millennium BC pottery assemblages of the northern Wolds sites (Wardle 1992, 129), evidence of the exchange systems within the region (petrological analysis would be required to confirm this attribution).

Early Iron Age

Vessels 54-58 belong to a long lasting tradition of small, crude profiled, barrel-shaped jars current in eastern Yorkshire during the late 1st millennium BC. The class is well known accompanying burials of the Arras Culture that provide a dating framework based on associated brooch types that extends from the early 4th century down to the 1st century BC (Rigby 1993). However, these jars are only one component in the domestic pottery assemblages of the regional Iron Age that are the subject of current research.

ROMAN POTTERY

by J. N. Dore

Introduction

The fabric of each vessel was examined in the hand and under a binocular microscope (x20 magnification) equipped with an eyepiece graticule graduated in millimetres. Colour, inclusion type, inclusion size, density of inclusions and texture were recorded.

Six categories of texture were used: 'Texture 1 (T1): not > 0.1 mm; Texture 2 (T2): not > 0.2 mm; Texture 3 (T3): not > 0.5 mm; Texture 4 (T4): not > 1 mm; Texture 5 (T5): not > 2 mm; Texture 6 (T6): not > 4 mm.

The density of inclusions was expressed as the percentage of the area of the fresh break examined under the microscope which was occupied by inclusions. This was estimated by comparison with standard charts (see for example Terry and Chilingar 1955). The values and their associated terms are as follows: Sparse: 0 - 10%; Moderate: 10 - 30%; Abundant: 30+%.

The catalogue entries refer to illustrated sherds only. The dates of the vessels provide a *terminus post quem* for the feature in which they were found.

Catalogue

1. Mortarium; very hard orange brown, blue-grey core, cream slip on outer surface; inclusions: fine discrete matrix, sparse quartz T3. The rim form suggests a date early in the 2nd century AD if not in the late 1st century. A similar vessel occurred at Brough in a context assignable to the period *c.* AD 110-140 (Corder and Romans 1937, Fig. 14, No. 106). *Foundation deposit [3204].*
2. Dish; pale grey with mid blue-grey core; inclusions: fine matrix containing sparkling grits, occasional quartz, T2. Crambeck type 2 (Corder 1937). *Foundation deposit [3204].*
3. Mortarium; orange, dull brownish-grey core, cream slip on top of rim; inclusions: common, quartz, T2, red iron oxide, T2, occasional fine-grained rock fragments, T4. Only the bead and the inside edge of the rim survive. What little can be seen of the position of the bead would suggest a date in the first half of the 2nd century AD. *Foundation deposit [3502].*
4. Wall sherd of a handled jar, possibly Huntcliff type; mid grey with black surface; inclusions: common, quartz, T3, red and black iron oxide, T3, and occasional calcite, T4. Late 4th century AD (if 53 is Huntcliff). *Foundation [3502].*
5. Bowl; mid grey with burnished surface; inclusions: common, quartz, T3, occasional black iron oxide, T3; same fabric as nos. 59 and 60. Similar to a BB2 form. Possibly a Holme-on-Spalding Moor or a Norton product. Probable mid 3rd century AD. *[3503].*
6. Hand-made jar; dark grey with dirty grey brown surface; inclusions: common, calcite, T4, occasional quartz, T3. *[3503].*
7. Hand-made jar; dark grey with brownish-grey inner surface, black outer; inclusions: common, calcite T4. *[3503].*
8. Jar; mid grey with burnished outer surface; inclusions: common, quartz, T4. [3503].
9. Hand-made jar; dark grey with grey to black surface; inclusions: common, calcite, T4, occasional quartz, T3. *[3503].*
10. Jar; mid grey with burnished outer surface; inclusions: common, quartz, T3. *[3503].*
11. Rim sherd of a jar; dark grey with burnished outer surface; inclusions: sandy, well fired matrix, common, quartz, T2. Possibly a Roxby product (Rigby and Stead 1976, Fig. 66 no. 29), in which case mid 2nd century AD. *Ditch 3518 [3517].*
12. Wall sherd of Parisian Ware; pale grey, mid-grey burnished surface; inclusions: fine matrix, no inclusions visible. Parisian Ware was originally defined by Philip Corder (1956). Since then numerous finds have considerably extended the distribution and suggested three production centres: Rossington Bridge, Market Rasen and Roxby (Rigby and Stead 1976; Rigby 1980). The stamp is similar to Rigby's stamps 2 and 3 at Rudston *(op. cit.* Fig. 25). The diameter and angle of the sherd suggest that it came from a beaker such as that shown on Fig. 90, no. 2 from Old Winteringham (Rigby and Stead 1976). Second half of 2nd century AD or early 3rd century AD. *Ditch 3518 [3517].*
13. Hand-made jar; black with dark grey brown surface; inclusions: common, angular calcite, T4. *Ditch 3523 [3522].*
14. Beaker; very pale orange (burnt?, probably originally white), black colour coat on outer surface, dark red on inner; inclusions: fine, well-fired matrix, common quartz, T1, red iron oxide, T2; Probably Nene Valley. Probably 4th century AD. *Ditch 3523 [3522].*

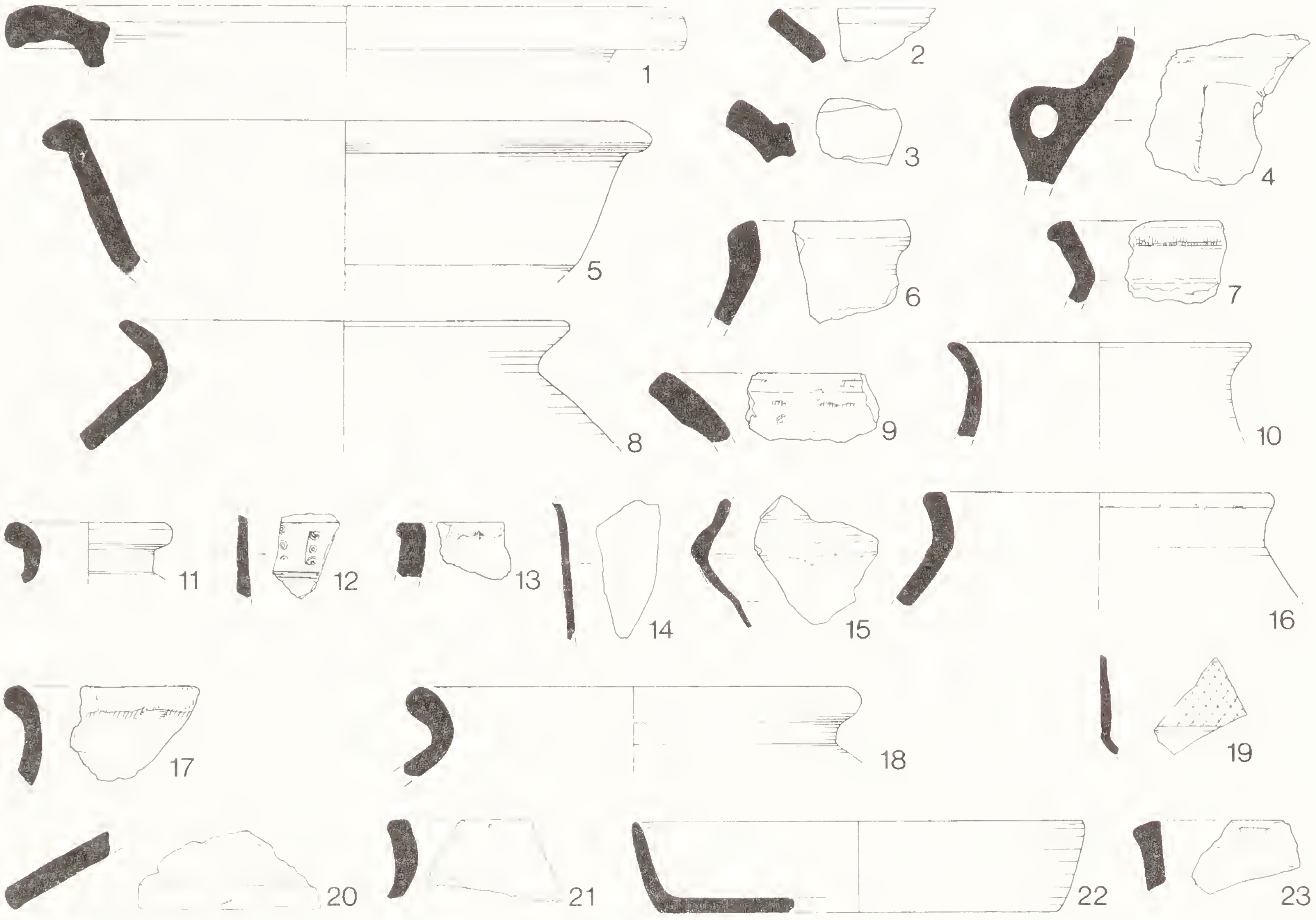

Fig. 21. Pottery from the Romano-British settlement at the northern end of the corridor (scale 1:4).

15. Bowl; dark grey core, pale grey-brown margins, polished black outer surface; inclusions: fine matrix, common, quartz, T2. A possible Roxby product (Rigby and Stead 1976, 140-1, type E). *Ditch 3523 [3522].*
16. Hand-made jar; dark grey brown with black surface; inclusions: common, angular calcite, T4. *Ditch 3525 [3524].*
17. Hand-made jar; dull mid brownish grey with black outer surface; inclusions: common, quartz, T3, calcite, T4. *Fill of grubenhaus [3536].*
18. Jar; mid grey with dull orange brown core, smoothed surface; inclusions: common, quartz, T2. Possibly a Holme-on-Spalding Moor product. Similar vessels occurred in the lower group from the Rudston well (Rigby 1980, Fig. 49, nos. 242-245) deposited after *c.* AD 293. *Pit 3543 [3542].*
19. Bowl; fine black with pale-grey sub-surface margins and smooth black surface; fine cross-hatched decoration; inclusions: fine matrix, sparse quartz T3. Possibly a Roxby product (Rigby and Stead 1976, Fig. 68, no. 73). Early-mid 2nd century AD. *Ditch 3568 [3566].*
20. Hand-made lid; black; inclusions: common, angular calcite, T3. *Ditch 3568 [3566].*
21. Hand-made jar; orange with patchy orange and dull brown surface; inclusions: common, quartz, T3, red iron oxide, T3, and calcite, T3. *Pit 3541 [3572].*
22. Dish; pale grey, mid-grey core, smooth dark-grey surface; inclusions: abundant, quartz, T2; the fabric is similar to that of BBl, though the texture is finer, and the colour and finish is different; the vessel is probably also entirely wheel made. Probably 3rd century AD. *Ditch 3700 [3599].*
23. Jar; black; inclusions: abundant, quartz, T3; though this is a Knapton form it has no calcite in it. *Ditch 3707 [3706].*

Discussion

All of the material in the catalogue was recovered from a Romano-British linear settlement situated to the south of the gas production site on the valley floor. The small size of the coarseware assemblage enables only general conclusions to be drawn. Pottery from the two foundation deposits 3204 and 3582 (1, 3 and 4) suggests that the identifiable structures date to the later 3rd or 4th centuries AD. The ditch fills all seem to date to the same period, with the exception of ditch 3518 (11 and 12) which could have been open somewhat earlier, in the second half of the 2nd century AD (one must exercise caution, however, since this date is based on only two sherds, which could be residual). There are other suggestions, from the Roxby products (15 and 19) and the sherd of Parisian ware (12), of earlier activity on the site. Caution must be exercised, however, since these items (and the mortaria) could have had greater value than the rest of the assemblage. The specialised function of the mortaria or the finer execution of the Roxby bowls and the Parisian Ware could have ensured their survival, possibly as heirlooms.

The assemblage seems to have been almost entirely regionally derived. The exceptions are the beaker sherd (14) which probably came from the Nene Valley and possibly the mortaria (1) which could have been local but could, equally well, have come from a number of areas in northern England. The hand-made jars in calcite-gritted fabric are mostly of 'Knapton' type and probably all of at least 3rd century AD date. Products of the Crambeck and the Holme-on-Spalding Moor industries are represented.

ANGLIAN POTTERY

by Christine Haughton

Discussion

Eighty-two sherds of Anglian pottery from the Caythorpe gas pipeline excavations were examined. These were recovered from 31 contexts and comprise 58 body sherds, 13 rim sherds and 11 base sherds. A maximum of 58 vessels are represented. All of the vessels, with only one possible exception which may in fact be Romano-British, are hand-made. The majority of the sherds were recovered from the northern end of the corridor where at least one *grubenhaus* cut through deposits associated with a Romano-British linear settlement. Several sherds were associated with a relict stream channel and an Anglian posthole structure situated lkm to the south of the *grubenhaus*.

The small size of the sherds, the lack of joining sherds, or even groups of sherds from the same vessel, have meant that vessel sizes and shapes are impossible to determine in most cases. Where vessel shape could be defined, the majority are of the characteristically Anglian round-based bag-shaped pots. The simple rims are either straight or slightly out-turned. The fabrics are generally soft and crumbly as one would expect of vessels which would have been fired in a domestic bonfire kiln. The predominant fabric colour is dark grey, although some sherds have patches of brown and orange where they were in contact with the fire. Three sherds have the remains of charred organic material, possibly the remains of food, adhering to their inner surfaces.

Three main fabric types have been identified, classified on the basis of the temper added by the potter to the clay. Twenty-eight sherds (*c*.34%) have fine to medium sand tempering, four of which also have mica or biotite present. A further 28 (*c*.34%) have quartzite tempering, three of those also containing mica or biotite. The third major group comprises 22 calcite-gritted sherds (*c*.27%), one with mica or biotite and four with fired-out organic material. The remaining four sherds (*c*.5%) comprise one tempered with Oolitic limestone and three with sandstone; one of the latter also contains small fragments of what appears to be ironstone.

All of these fabric types are present in the assemblage from the Anglian settlement at West Heslerton in the Vale of Pickering, about 20km to the north-west of Caythorpe. Here, the pottery has been dated to the period AD 450-650 on the basis of material recovered from the contemporary cemetery (Powlesland & Haughton, forthcoming (a)). The posthole structure and *grubenhaus* from Caythorpe also have close parallels at Heslerton (Powlesland & Haughton, forthcoming (b)). It is hoped that more precise dating of the two assemblages will be possible in the near future as a result of the detailed analysis of the West Heslerton settlement material in relation to the site stratigraphy currently being undertaken by the Heslerton Parish Project and the East Midlands Anglo-Saxon Pottery Project.

Fifteen of the sherds are burnished, a technique involving rubbing the surface of the vessel prior to firing to produce a shiny surface which also helps to reduce the porosity of the vessel; two of the burnished sherds also have incised decoration and one has possible stamped decoration. A further two sherds have incised decoration only, and a third is decorated with two stamped motifs as well as incised decoration. In all cases, the incised decoration consists of one or more horizontal lines, with one sherd also having two arcs which could either be hanging or standing arches (*hangende bogen* or *stehende bogen*). Pots with simple linear patterns are most common in the 5th century AD. One of the stamped sherds is decorated with two closed-end circular crosses of Type A4aii. The second has what appears to be a single very worn stamp of Type A4ai - an open-ended circular cross (Briscoe 1981, 5). These two types make up 87% of all the stamps in Briscoe's corpus, and their ubiquitousness is probably due simply to the immediate availability of round tool material such as sticks, bones and antler, and the ease of execution of the cross-hatched design (Briscoe 1981, 21). Stamps are the predominant form of decoration towards the end of the 6th century AD.

At present, insufficient work has been carried out on Anglian domestic ceramics as to make any but the most general statements as to date, vessel types, raw material sources, etc. The material can be dated only by objects found in association, and even then it is often difficult to be more precise than a particular century. Most dated pottery of the period comes from funerary contexts rather than from settlements. In the long term, the Caythorpe material will be of importance within the wider regional framework. Current research is centred on the production of a gazetteer of collections of Anglo-Saxon pottery and a Fabric Type Series for the east Midlands by the East Midlands Anglo-Saxon Pottery Project; a reappraisal of the Anglian pottery from the settlements at Wykeham and Crossgates in the Vale of Pickering (Haughton, forthcoming); and the analysis of the material from the West Heslerton Anglian Settlement (Powlesland & Haughton, forthcoming (b)). It is hoped that the results of the above work will provide a much more detailed picture of the Anglo-Saxon period in general, and of the ceramics in particular.

THE FLINT

by Peter Makey

Introduction

The excavations produced a total of 1,612 struck flints from over 130 features. In addition to this, fieldwalking of the excavated corridor route produced 6429 flints. The distribution of lithics varied, with the bulk of excavated finds coming from pit groups in Fields 0023, 0061, 7500 and 2343. Outside of these areas many of the prehistoric lithics were clearly residual with their spatial and chronological spread mitigating against valid metrical analysis.

1. Oblique arrowhead of Clark' s PTD class G, very crude example with minimum of required retouch. *Pit 1011[1012]; Group 1020.*
2. Saw/serrated edge blade (right side). Very fine serrations. *Pit 1016 [1017]; Group 1020.*
3. End scraper. *Pit 1004 [1005]; Group 1020.*
4. End scraper. *Pit 1004 [1005]; Group 1020.*
5. Keeled discoidal flake core of *Levallois* type. *Pit 1004 [1005]; Group 1020.*
6. Oblique arrowhead, of Clark's PTD class H. Very crude example with basal break. *Pit 1004 [1005]; Group 1020.*
7. Side (left) scraper with a left side notch. *Pit 1016 [1017]; Group 1020.*
8. End scraper, broad with butt facets and recent damage. *Pit 1040 [1041]; Group 1080.*
9. Saw/serrated edge blade (left side). Very fine serrations. *Pit 1040 [1041]; Group 1080.*
10. Side and end-scraper (double). Slight battering on butt. *Pit 1370 [1368].*
11. Bilateral pointed double-edged flake knife (right side). Very fine serrations. *Pit 1385 [1412]; Group 1375.*
12. Obliquely blunted point, microlith of Clark's class D5. Piece has possible use wear on the right side. *Pit 1386 [1402]; Group 1375.*
13. Side-end (right) scraper. *Pit 1075 [1077]; Group 1130.*
14. Leaf arrowhead, crude example of Green's class 2B. *Furrow 025.*
15. Polished side-end scraper (right). Right side utilisation is minimal. *Posthole 520 [521]; Group 604.*
16. Discoidal scraper. *Hearth 1391 [1396]; Group 1420.*

The artefacts (Table 1)

Flakes and blades

A sample of material shows the most frequent breadth:length ratio for the Grooved Ware associated material would appear to lie within the 1:5-2:5 range. Unfortunately flakes from individual Bronze Age and Early Neolithic features are too few to provide statistical comparisons and these figures have to some extent probably been skewed by the removal of blades, which have been classified as pieces of roughly blade form with a length over 2.5 times the width. The few

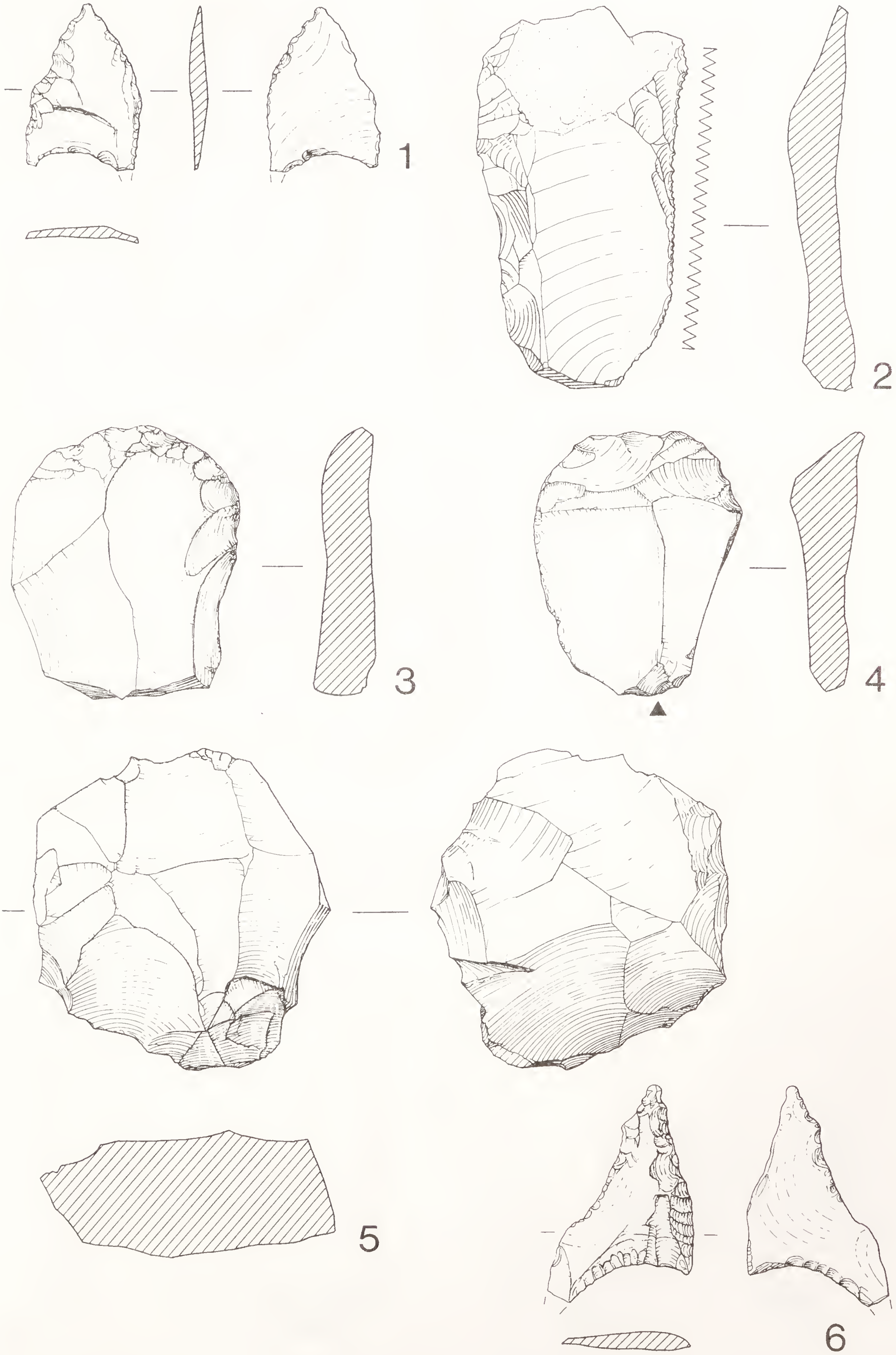

Fig. 22. Flint from pit group 1020, 1-5 (scale 1:1).

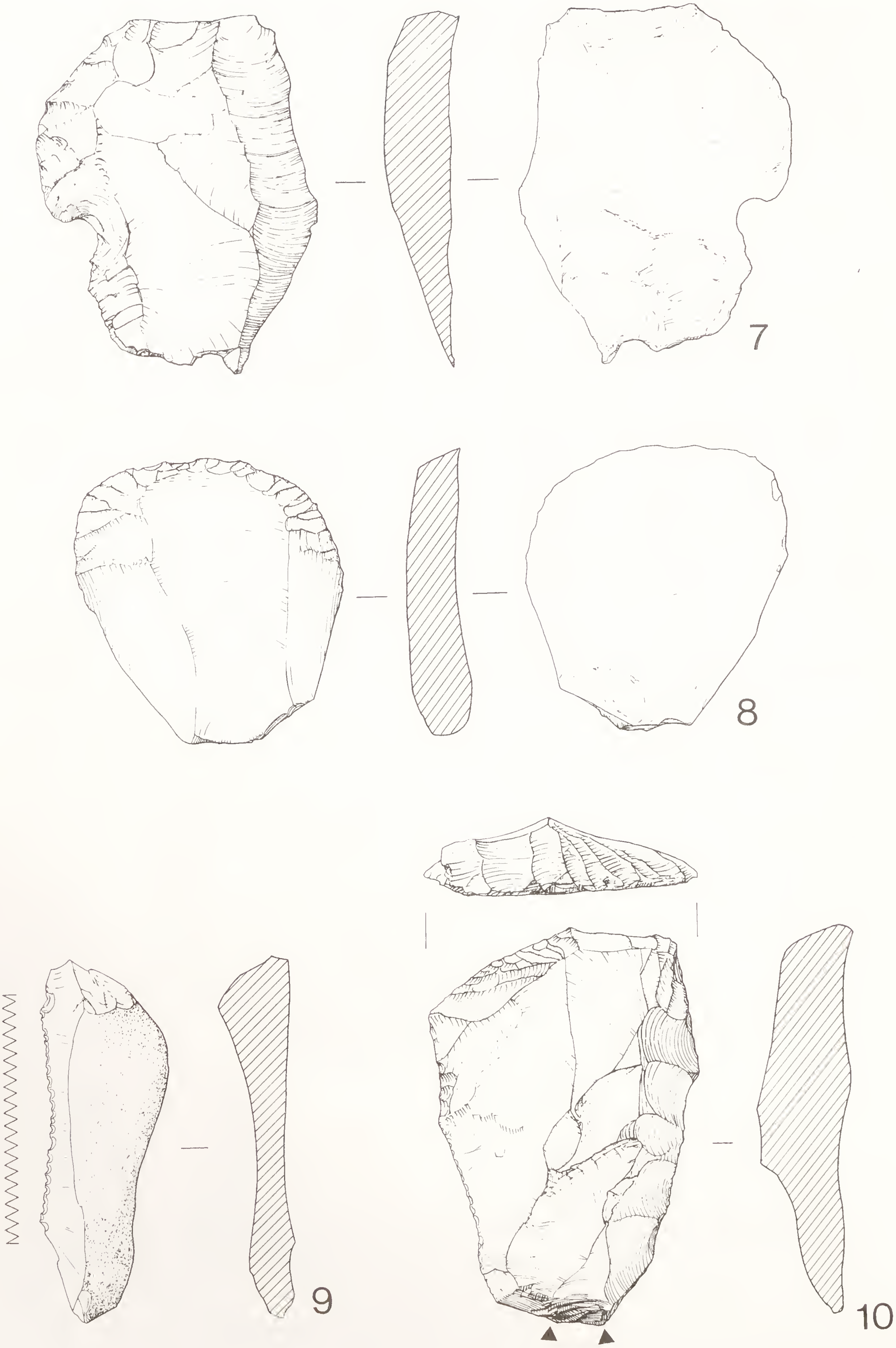

Fig. 23. Flint from pit group 1020, 7; pit group 1080, 8-9; solitary pit 1070, 10 (scale 1:1).

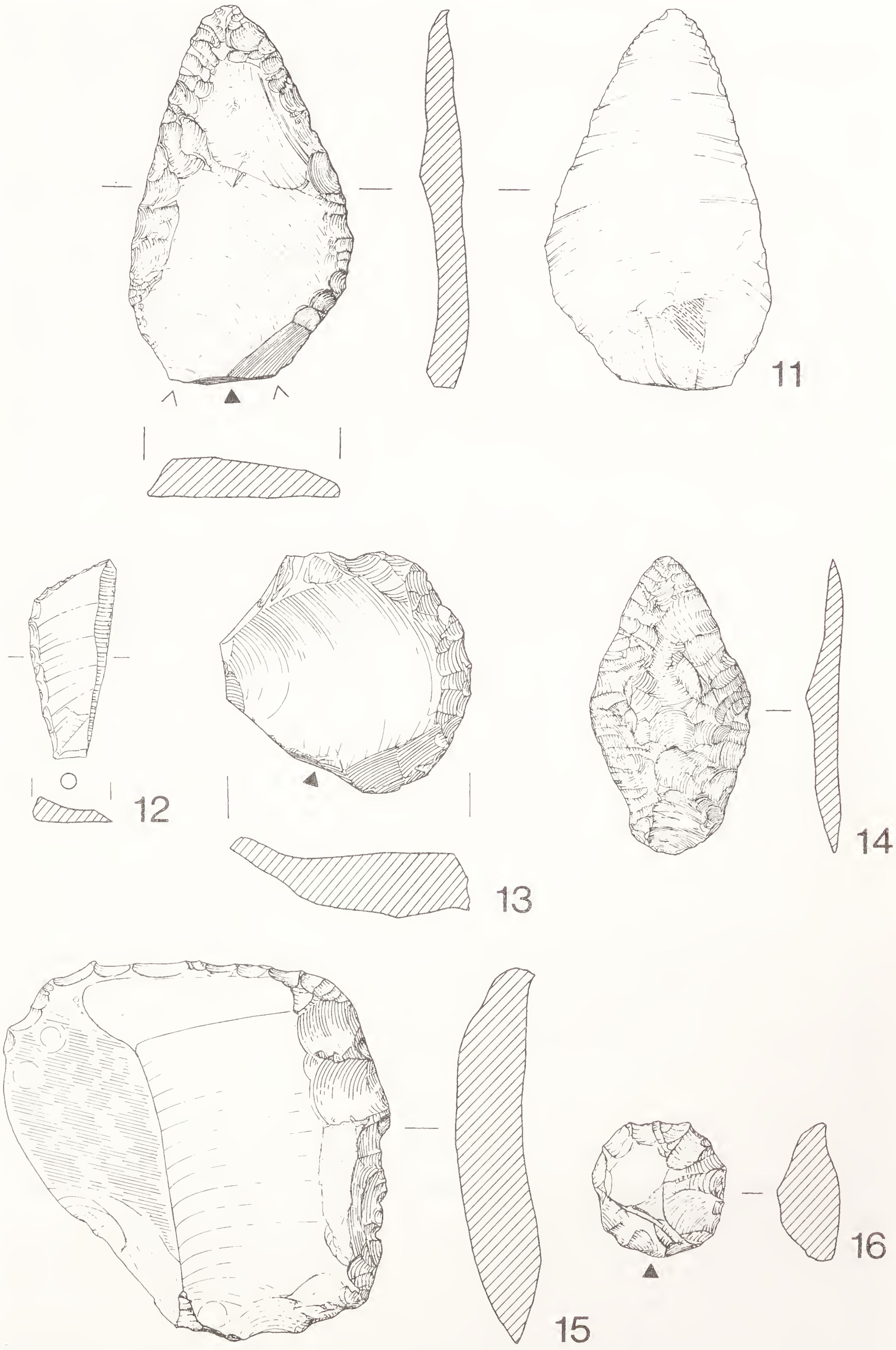

Fig. 24. Flint from pit group 1375, 11-12; pit group 1130, 13; furrow 025, 14; posthole 520, 15; pit group 1420, 16 (scale 1:1 except for 12 at 2:1).

flakes and blades that are from possible sealed Early Neolithic contexts tend to be *c.*8mm thick and show a frequent tendency to be strangulated.

Cores

Virtually every one of the 63 cores and 34 fragments recovered from the excavation appear to have been worked to exhaustion. Most cores are small keeled (5) multi-platform flake varieties weighing on average 25-30gms. The excavation material appears to conform to the trend towards multi-platformed cores (Healy 1984, 12) in Grooved Ware associated flint assemblages with double platform cores in notably low proportions. In many instances the multi-platformed cores are keeled or similar to the *Levallois* style but would have been of little use in the preparation of transverse arrowheads. It is probable that this change in core technique is both chronologically stylistic and as a result of raw material constraints.

Rejuvenation flakes

The 25 rejuvenation flakes have been classified following the system devised by Saville (1973). They occurred with varying frequency but mainly in Grooved Ware and non-Beaker Bronze Age assemblages (Bronze Age figures have probably been skewed by the proportional over-representation of the flakes in pit 2606). Though all of conventional classes of rejuvenation flake are represented, over 50% of the specimens are of Saville's *(Ibid)* class D; flakes struck from the same plane as the existing platform and consequently removing it. Most specimens are very small with an average weight of around 8gms and there would not appear to be any chronological or typological preference, though it is noticeable that a small number of the scrapers from later Neolithic (pit 050) and Bronze Age contexts have been manufactured on core rejuvenation flakes.

Scrapers

The scrapers from all the assemblages tend to be end (3, 4, 8), extended end, or side end (10, 13), forms. With only a few exceptions there was no readily apparent overall chronological preference for one particular typological form over another. One exception may be an apparent preference for double end and oval shaped scrapers to occur with Grimston Ware, Peterborough Ware and non-Woodlands style Grooved Ware. These pieces can be remarkably fine, though the best example of a double end scraper comes from the field walking assemblage; this piece would appear to have been suitable for hafting. In all periods, side scrapers are conspicuous by their low proportions; they account for only 8% (six examples) of the diagnostic scrapers (including fragments).

A further exception to the above is the occurrence of discoid 'thumbnail' type scrapers, a fine example (16) of which comes from pit 1396 (Field 2343). This piece was found in association with another fragmentary example and four more noticeably small scrapers. Such pieces are typically characteristic of Beaker assemblages and in this case these examples are associated with sherds of All Over Corded (AOC) beaker. All the scraper types recovered from the Caythorpe excavations exhibit a preference for a primary flake edge angle of between 65 and 80 degrees. The average width of scrapers is 35mm and the average thickness is 12mm. One significant trait that is apparent is for butt preparation on pieces of later Neolithic to Bronze Age date (1, 3, 8). The relative proportion of broken scrapers is quite high and probably results from heavy use since many of the excavated examples show moderate to heavy traces of utilisation.

Polished edge scraper

A significant find which should be mentioned is a very fine asymmetrical, broad-edge, polished side (left) end scraper (15) which was recovered from a possible posthole (520) of uncertain date. This piece is nevertheless an important find of a relatively rare tool type. The piece is polished along one of its margins and this trait is clearly not resultant from the reworking of polished axe fragments. This implement has been manufactured on a brown till flint (Munsell 2.5Y 6l6-618). Two local examples are known from East Leys, Grindale, and are currently held by Sewerby Hall Museum (J. R. Earnshaw pers. comm.), but the known associations of this tool type are scant, although it is probable that such pieces have affinities with Peterborough and Grooved Ware assemblages (Manby 1974). The presence of this implement in the Caythorpe assemblages may relate to a prestige knapping tradition centred on the Grindale area.

Denticulates, notches and serrated flakes

Serrated flakes are a common feature of many Grooved Ware assemblages and those from the Woldgate (2, 9) would accord well with those recently published by Healy (1993). All are single edged and are in very fine condition. Healy has noted (1988) that such pieces probably have restricted functional use; microwear studies indicating their probable use in cutting vegetable matter. Significantly the Woldgate examples appear to be associated with the major domestic assemblages and fieldwalking distributions have produced proportionally less of these artefacts.

Notches and denticulates are conspicuous by their comparative scarcity in excavated assemblages. The excavated notches are crude singular notched pieces, the denticulates are also markedly crude. The best example of a denticulate comes from the field walking assemblage in which these pieces have a proportionally greater representation.

Awls and borers

It is notable that despite the domestic nature of the assemblage no examples of this implement type were recovered from the excavations, however the presence of this implement type is attested by a fine example which was recovered from Field 2313 during fieldwalking.

Arrowheads

The excavation produced only four examples of arrowheads, none of which showed any clear traces of attrition consistent with use. There was only one example (14) of a leaf-shaped arrowhead. This was a crude example of Green's class 2B (1980). Another fine leaf-shaped arrowhead was recovered from Field 2343 during the final phase of fieldwalking. Three more arrowheads were recovered during the excavations (two illustrated; 1 and 6). These were all crude examples of petit-tranchet derivative types; two being of Clark's 6 class G (1) and one of class H (6) (1934a). One class G was recovered from pit 050 and this marks the furthest south-western recorded distribution for this class of arrowhead on the Woldgate (Makey 1989). This example and the class H piece from pit 1004 were found in association with Grooved Ware.

Knives

A very fine bi-lateral flake knife (11) was recovered from pit 1385 (Field 2343), and can probably be considered Neolithic on the basis of its association with crude blade-like waste material. Two further whole flake knives of uncertain date were recovered but these are by comparison very crude.

Artefact type	*No of intact examples*	*No of broken examples*	*Total*	*% of total*
Flakes and waste	887	323	1210	75%
Blades	69	64	133	8%
Cores	63	34	97	6%
Core rejuvenation	25		25	1.5%
Miscellaneous retouch	19	12	31	2%
Notches	5		5	<0.5%
Denticulates	3		3	<0.5%
Serrated blades	9		9	0.5%
Serrated flakes	6		6	<0.5%
Scrapers	63	11	74	4.5%
Arrowheads	4		4	<0.5%
Knives	3	3	6	<0.5%
Microliths	1		1	<0.5%
Utilised flint pebbles	4		4	<0.5%
Flint hammer stones	3	1	4	<0.5%
Totals	*1164*	*448*	*1612*	
Percentage	*72%*	*28%*		

Table 1: Total number of excavated flints.

Chronology

Later Mesolithic

Though less than one percent of the lithics could be assigned to the Mesolithic period, the presence of this small component within the excavated assemblage is nevertheless of regional significance, since stratified Mesolithic flint work from the Woldgate area is known from only a few sites; the pre-barrow soil of Kilham Long Barrow (Manby 1976), the pre-mound soil of a medieval post mill at Bessingby, Bridlington (Manby 1973), from the hill fort at Paddock Hill *(ibid)* and from a beneath a barrow at Octon.

At least 15 of the excavated pieces are of Mesolithic date, although, unfortunately all of these were clearly residual. Three were heavily patinated bladelets, of which two were found in association with Grooved Ware (pit 058, in Field 0023). The most significant of the remaining pieces are a fine, small, almost *Levallois* keeled flake core weighing 25gms, and an obliquely blunted point (12) of Clark's class D5 (Clark 1934b). Both of these pieces came from the pit alignment in Field 2343 and significantly, the microlith shows possible traces of use-wear and appears almost to fit the core. It is notable that both pieces are unpatinated.

Though Mesolithic finds are known from field walking in this area they are in relatively low proportions compared to later period lithics, and tend to be predominantly clearly recognisable microliths and cores. The fact that such pieces are surviving in residual contexts has implications in the study of lithic scatter patterns. There are clearly Mesolithic sites to be located in this region but their survival is most likely to be in areas with pockets of colluvial deposits.

Early Neolithic

Few sealed Early Neolithic contexts have sufficient numbers of flints for detailed analysis, however there are certain traits that can be discerned. During this period the range of diagnostic implements is very restricted. Typical implements from the excavations and fieldwalking include, scrapers, leaf shaped arrowheads and flake knives, with scrapers being undoubtedly the primary tool component of the lithic assemblages.

Later Neolithic

Implements of this date include scrapers, notches, denticulates, oblique arrowheads, flake knives and miscellaneous retouched pieces. Blade-like material comprises only a very minor proportion of Durrington Walls type Grooved Ware assemblages. These pieces are characteristically long and thin and show traces of trimming on their butts yet show little in the way of dorsal blade scarring.

The often cited trend (Pitts 1978; Pitts and Jacobi 1979) towards a more flake orientated assemblage would appear to be confirmed and a previously noted local change in lithic reduction technique during this period is also apparent (Manby 1988), the primary traits of which are broad flakes and 'tortoise' *(Levalloisian)* cores. Though hitherto primarily associated with Grooved Ware sites at Hartendale, North

Carnaby (Manby 1974) and Flamborough Head (Moore 1964), many of the cores from the excavation are almost *Levalloisian* in form and defy the full application of conventional typology (Clark *et al* 1960). This may indicate that this regional trend is more significant than was previously recognised (Manby 1988). Furthermore it is of note that many of the cores recovered in the recent Caythorpe excavations are smaller in overall dimensions and weight than material previously published (Manby 1974; 1975), and flake cores certainly predominate. On the whole the reduction of cores in the later Neolithic assemblages would not appear to have been very controlled although a reasonable level of knapping competence is apparent.

The assemblages from two features deserve special note. That from pit 1001 (Field 7500), was unique in that despite producing 125 lithics, not a single retouched implement was recovered and none of the debitage showed significant signs of utilisation. Forty-three percent (54 pieces) of flints from this feature were from tertiary stages of lithic reduction, which included small chippings consistent with a knapping floor from which finished tools have been removed. All the pieces were very fresh despite being patinated. This assemblage was associated with Durrington Walls style Grooved Ware and included a very fine keeled class D (Clark *et al 1960*) and two platformed keeled cores which were almost of *Levallois* technique.

The second assemblage was from pit 1004 (Field 7500) and was probably one of the most significant of the prehistoric lithic assemblages from the Caythorpe excavations, especially in view of its association with Durrington Walls style Grooved Ware and hazelnuts. The flints (3, 4, 5 & 6) are a homogenous collection, which includes; five cores, two core fragments, one rejuvenation flake, six end scrapers, one side end (left) scraper, two side scrapers and a very crude *petit tranchet* derivative arrowhead of Clark's (1934a) type H. This kind of arrowhead is often associated with Durrington Walls style Grooved Ware (Manby 1974). One of the cores (5) is notably of *Levalloisian* character and another has clearly been rejuvenated. All of the finds from this feature have a total white patination.

Bronze Age

Implement types included, serrated edge flakes, a saw, denticulates, notched pieces, scrapers, knife fragments, flint hammer stones, pieces with miscellaneous retouch, retouched cores and core scrapers. In addition to which three intact none-flint hammerstones were recovererd from contexts 1074, 1278, 2607. There is a clearly discernible increase in the range of retouched implements, coupled with an increase in the relative proportion of miscellaneous retouched pieces.

Another characteristic of the Bronze Age flint assemblages is an increase in bifacial flaked debitage and the progressive degradation in the quality of flake production. The latter trait is more noticeable in the non-Beaker Bronze Age assemblages which usually contain a high proportion of very crude, heavily battered, chunky debitage. In one instance (pit 2606 in Field 2343) a core appears to have received subsequent use as a hammer stone. The utilisation of cores is a feature of these industries, at least one scraper (pit 2604, Field 2343) has been manufactured on a core and two unclassifiable cores (pit 2606, Field 2343) have received miscellaneous retouch. Overall it may be said that the Bronze Age flint industries are of a heavier more industrial nature than assemblages from preceding periods and show a sparing use of raw material.

Perhaps the most significant of the Bronze Age flint assemblages came from pit 2606 (Field 2343). This feature produced a notched flake, a denticulate and a fragment of a flint hammer. Most importantly this feature also produced a high proportion of cores, core fragments and rejuvenation flakes, which account for over 22% (26 pieces) of this assemblage. In addition this feature also produced over 35% (11 pieces) of the total miscellaneous retouched flints from the recent excavations. Six of the seven scrapers (one is a fragment) from this feature appear to show moderate to heavy utilisation wear and one of the cores received burning consistent with being in a fire.

The flint from barrow 550 is also of note since a small number (15 pieces) from the burial pit are in a very fresh condition and show no traces of patination. These are probably contemporary with the burial but included only one retouched piece; a serrated edge flake. Similar material and another serrated edge flake was obtained from the ring ditch sections.

Conclusion

The excavation material comprised 139 retouched elements and 1,473 flints which can be considered as debitage (including cores and core rejuvenation flakes). This gives a ratio of 1 tool to 10.6 pieces of debitage. In this report flakes, chippings and chunks have been bulked together for convenience although they have been catalogued as separate classes. A significant and rare find which deserves mention is a very fine asymmetric broad edge polished end scraper which, unfortunately, could not be dated.

The assemblages are generally of a domestic nature and are reasonably consistent with material of later Neolithic and Early Bronze Age date that has previously been published from the area (Manby 1974; 1975). Surprisingly, however, no examples of either barb and tanged or ripple flaked arrowheads were recovered from the excavations, despite the fact that this area has produced these finds in abundance in previous excavations and fieldwork (Manby 1974; 1975; Makey 1989).

Overall, approximately 80% of the debitage component is from secondary stages of lithic reduction; tertiary flakes are present in large numbers but primary lithic reduction debitage is almost absent. Many of the larger pit assemblages appear to contain conjoins but despite attempts it has not been possible to find a single refit. All the material might be termed moderately fresh; plough damage and other sources of post-depositional damage affect the assemblage to varying degrees.

There are a few general characteristics common to both the Neolithic and Bronze Age excavated lithic assemblages. These are :-

i a restricted range of tools
ii keeled flake cores are ubiquitous in all types of assemblage
iii the predominant use of local, olive-grey, till-derived flint
iv hard hammer production techniques would appear to have been employed throughout.

One of the major results of the excavation programme has been the recovery of lithic material from areas that were previously quite unproductive. Furthermore it is now clear that there is some degree of chrono-spatial clustering of the flint assemblages on this part of the Yorkshire Wolds. This frequently appears to relate to the presence of barrows around which there is often an increase in the relative proportion in domestic debitage. Overall later Neolithic components are slightly better represented in both surface scatters and excavated assemblages. The Bronze Age elements are greatly reduced in emphasis in the excavated assemblage. To some extent this directly relates to micro-topographical factors. Furthermore it is probable that the Bronze Age material has been subjected to a greater degree of dispersal by ploughing.

Spatial distribution

The pit groups with predominantly Middle to Later Neolithic assemblages appear to show some nodal clustering with respect to the Woldgate and this distribution reasonably matches that of later Neolithic arrowheads (Makey 1989). On the whole the Neolithic material tends to focus both on the northern side of the road in the vicinity of Woldgate Reservoir and in two areas immediately south of the road. The Bronze Age lithics cluster around the area east of the Woldgate Reservoir in Field 2343. The indications are that a heavy lithic industry characterised by notches, denticulates and crude miscellaneous retouched pieces of probable Bronze Age date exists or has been dispersed in the region of Field 2343.

In addition to this the restricted range of tool types and the low number of arrowheads recovered from the excavations may be of great significance since large numbers of arrowheads are known from this area (Manby 1974; 1975; Makey 1989) and the comparative scarcity on the southern side of the Woldgate may have a direct relationship to the prehistoric environment in this area. Furthermore, it is becoming increasingly clear that in the central Wolds area raw material constraints would probably have imposed restrictions with regard to maximum core size, and this would appear to hold true throughout all of the post-glacial flint assemblages. The effects of raw material availability can be remarkably localised, indeed a general degradation in the standard of knapping and raw material selection is apparent in areas near to the Gypsey Race. One other feature of note is an apparent tendency with Grooved Ware associated lithics for the larger assemblages to be derived from smaller pits.

WORKED STONE

by T.G. Manby

Stone axes

1. Butt fragment of a finely ground stone axe, elliptical section. Re-worked by bifacial flaking producing an irregular edge. Dark green, fine-grained tuff (probably Group VI: Macro). 63mm long and 47mm wide. *Pit 1336 [1337]; Group 1340.*

2. Broken stone axe butt reused as a pestle creating a convex facet. Well-finished axe, thick, rounded, oval section. Cutting edge chipped and battered by hammering. Grey coarse-grained stone of Greenstone type, shaped by pecking and well ground towards the cutting edge. 89mm long and 53mm wide cutting edge. 36mm by 29mm across re-used butt. Found during fieldwalking. *Topsoil; Field 2343.*
3. Fragment of a large stone axe, side faceted section (from a Cumbrian type axe). Finely ground surfaces to a smooth finish, pale chocolate coloured patination. Fine tuff (probably Group VI: Macro). *Pit 1370 [1369].*

Jet

4. Jet rim segment, black surfaces ground to a matt finish. Diameter at lip *c.*60mm. There is also a small flake from the same context showing no evidence of working. *Pit 1026 [1027]; Group 1020.*

Cumarked stone

5. A flattish-sectioned D-shaped block measuring 235mm x 175mm x 97mm recovered from the fill of pit 2606 in Field 2343. The upper surface has been partially levelled by pecking. A bowl-shaped cup 60mm diameter and 20mm deep flanked by a small rough pit 20mm deep and a kidney-shaped depression 35mm across with an irregular floor are visible on the flat upper surface. The underside has a natural "ripple" appearance with the tops of some ridges worn down. Weathered surfaces show erosion grooves and pits, but in other places there are scars. Fresh fractures show a compact fine-grained sandstone composed of well-rounded quartz grains, light brown to locally reddish patinated surface with some ferrugenous staining and areas encrusted with calcite pearls. The stone is likely to have been transported, probably by glacial action, from the middle Jurassic esturine sandstone series of the North York Moors or from the Coal Measures of the Upper Carboniferous. *Pit 2606 [2607]; Group 2608.*

Hammerstone

6. Hammerstone, utilising an erratic pebble, dark blue-grey with inclusions, ashy in character possibly a tuff. A large flake off one side caused by a plane of weakness. Batter at each end. 84mm long and 64mm wide. Not illustrated. *Pit 2606 [2607]; Group 2608.*

Discussion

The pecked cup depressions are comparable with the cup-marked stones found in Early Bronze Age barrows on the North York Moors. Cup markings appear on structural elements such as cist slabs, kerb stones and marker slabs, and non-structural blocks used in the cairn material. Stones with simple cup depressions are more numerous and widespread than those in combination with rings or rarer motifs (Spratt 1993, 85-88, Fig. 33). Sherds of a Bronze Age vessel were recovered from the same pit as the cup-marked stone.

The rim profile of the jet vessel can be compared with two pieces of jet from the nearby Rudston East Reservoir Site 3/2 (Manby 1980, 324, Figs. 8-10). Their flaring rim sections can be compared with those of the small handled cups, carved in shale from Wiltshire (Newell 1929) and Broad Down, Devon (Fox 1948, 7), and in amber from Hove, Sussex and Clandon, Dorset (Clarke *et al.* 1985, 115, 275 & 277, pl. 4.45 & 4.54). The association of these cups with Wessex graves (Piggott 1938, 82) is considered in discussion of the dating of Biconical Urns.

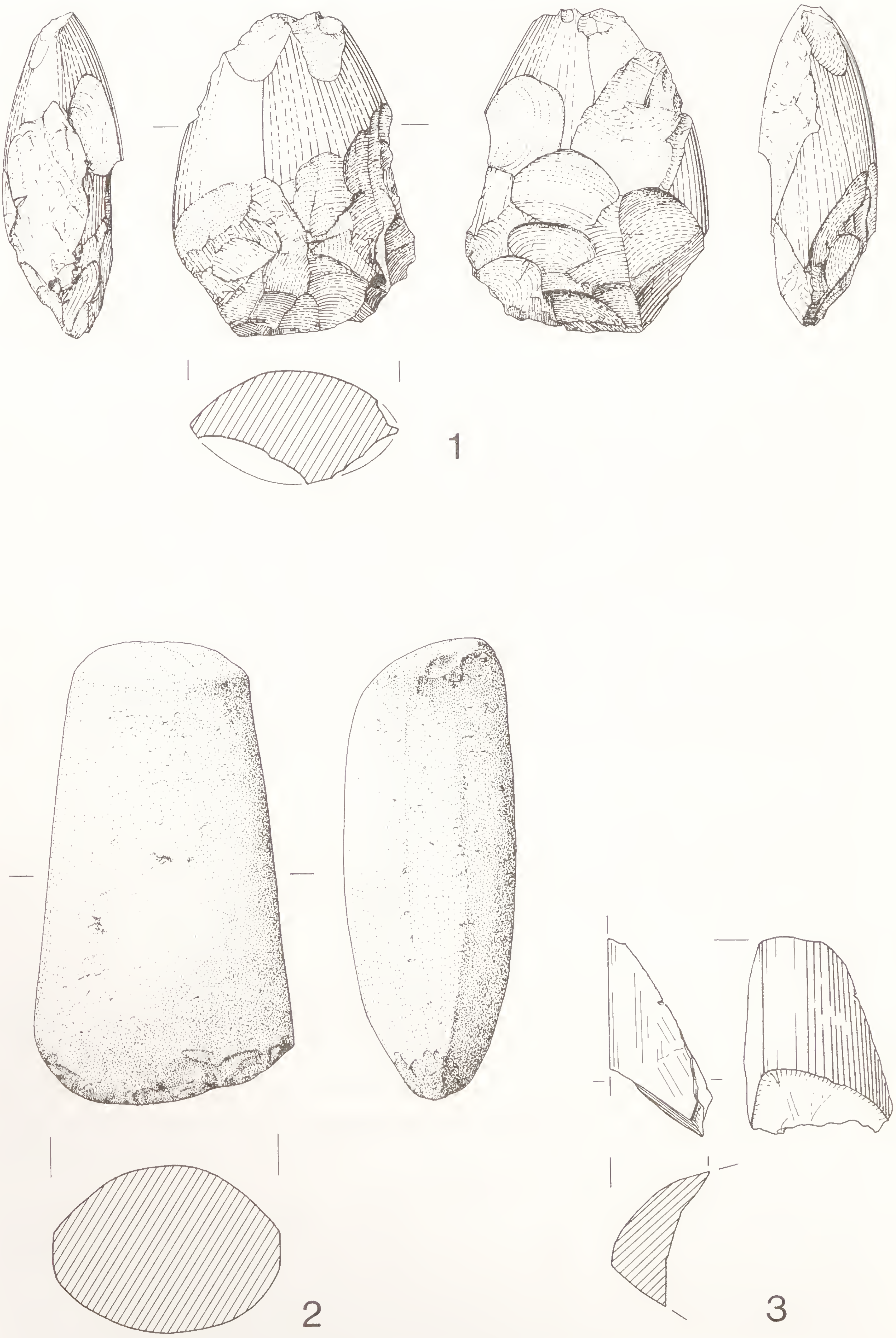

Fig. 25. Stone axes from excavated features (1, 3) and fieldwalking (2). Scale 3:4.

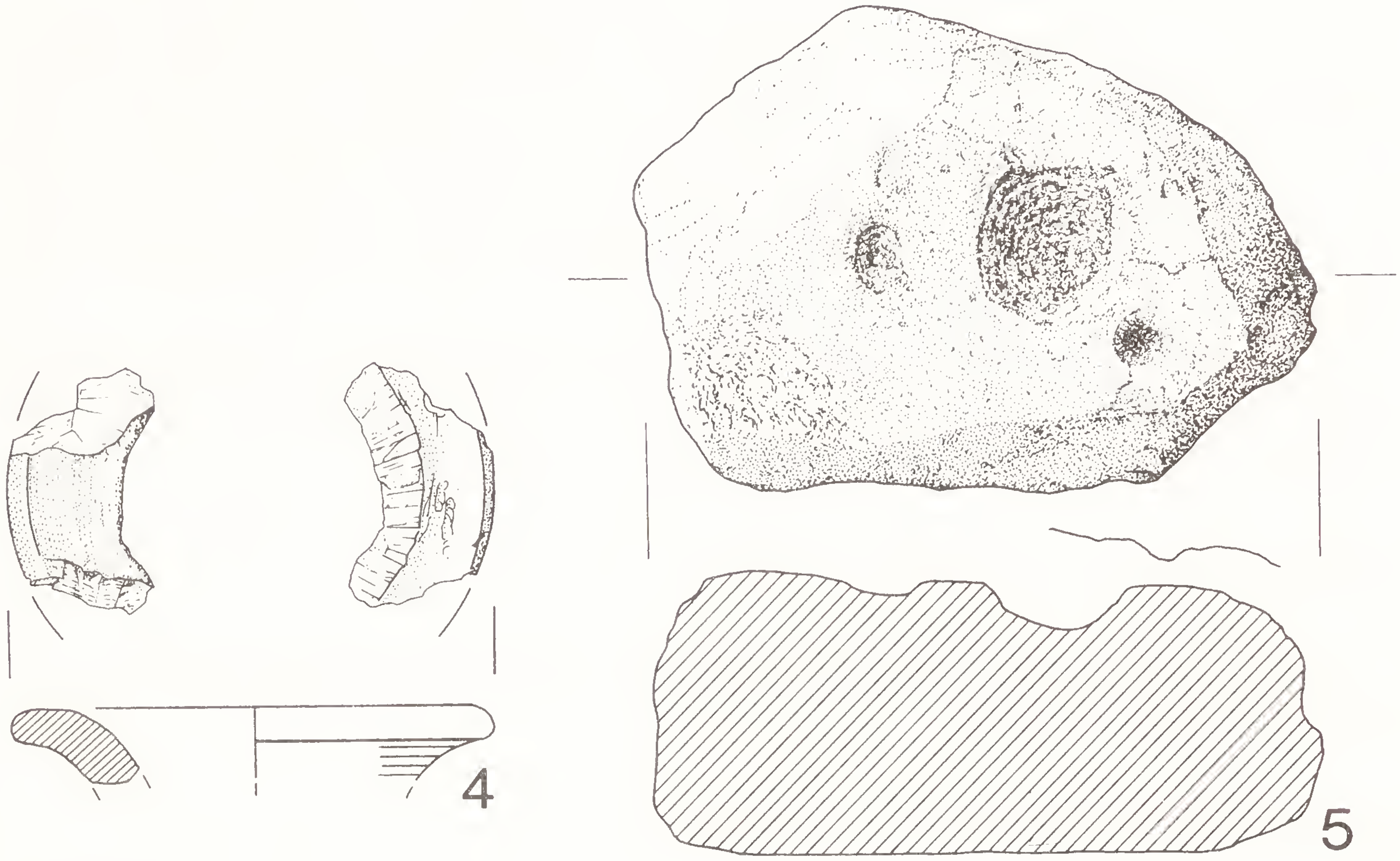

Fig. 26. Jet fragment (scale 3:4) and a cup marked stone (scale 1:4).

THE HUMAN SKELETAL REMAINS

by Anthea E. Boylston and Charlotte A. Roberts PhD

Introduction

The human skeletal remains which form the subject matter of the following report were recovered from a variety of contexts that were excavated and recorded along the corridor of the Caythorpe gas pipeline. Although the sample of nine individuals is too small for any statistical analysis or for conclusions to be reached about the population in the area at that time some inferences can be drawn about burial practice in the different periods.

Preservation

The degree of preservation of each individual is recorded in Table 2. The human remains from the Bronze Age barrow were very poorly preserved. The bones were friable in nature and difficult to recover and their surfaces had been badly eroded and long bone shafts were fragmentary. However, the teeth of both individuals had been retained in their entirety since the teeth are the most highly mineralised part of the human body.

Preservation of the four individuals dating from the Iron Age period was, however, fairly good. The skulls were fragmentary but fairly complete as were the long bone shafts, although often their articular surfaces had suffered considerable degradation. Post-mortem damage had obscured the surfaces of most of the bones so it was difficult to record non-specific infections which affect the superficial aspect of the bone. As in the case of the Bronze Age individuals, the dentitions were almost complete so an age could be ascribed to each, particularly since some were juveniles.

In no case were the skeletal assemblages sufficiently intact for long bones to be measured or dimensions of skulls recorded in order to calculate indices which would demonstrate further characteristics of the skeletons.

Minimum numbers of individuals

Eight discrete burials were recovered along with a few small fragments from the skull of a ninth individual.

Age (Table 2)

Subadult skeletons in the present study were aged by the method of Schour and Massler (1941) with recalibration in the light of more recent research by Hillson (1986). Gray's Anatomy (Williams and Warwick 1980) was consulted for times of fusion of epiphyses. The single infant burial was aged by measuring long bones according to the method of Fazekas and Kosa (1978).

Adult ageing was heavily dependent on the degree of attrition seen on the teeth since these were generally well preserved (Brothwell 1981). The auricular surface of the ilium was also assessed in the case of 3571, the only burial in which it was preserved (Lovejoy *et al* 1985). In one individual (1010) there was also degenerative joint disease of the spine which can provide additional but more subjective information (Stewart 1958). Ages for adults are given in broad categories since in recent times much more caution with age estimations has been necessitated by the results of the Spitalfields excavations in the early 1980s (Molleson and Cox 1993).

Using the above criteria, one of the individuals from the Bronze Age round barrow (529) was a subadult aged approximately 14-16 years. This burial occupied the central grave of the barrow. The individual inhumed in the surrounding ditch (532) was a young/middle-aged adult (i.e. approximately 25 - 35 years of age).

The four Iron Age burials included a middle-aged male (1010) approximately 35 - 45 years of age, a young/middle-aged adult and two subadults aged 6 - 9 years and approximately 15 years (3126 and 3127). The disturbed burial (3571) recovered from a narrow slot adjacent to the *grubenhaus* was a young/middle-aged adult of possible Anglian date and the well preserved Romano-British infant burial (3581) appeared to be aged between 0 and 3 months. The few fragments of bone recovered from context 2310 came from the skull of an infant but there was not enough material to be more precise as to its age.

Table 2: Summary of the human skeletal remains

Burial	*Period*	*Preservation*	*Age at Death*	*Sex*
529	Bronze Age	Poor*	14-16 years	Indeterminate
532	Bronze Age	Poor	Young/middle-aged adult	?Female
1010	Iron Age	Fair	Middle-aged adult	Male
2310	?Iron Age	Poor	Infant	Indeterminate
3115	Iron Age	Fair*	Young/middle-aged adult	Male
3126	Iron Age	Fair	15 years + 6 months	Indeterminate
3127	Iron Age	Fair/poor	6 - 9 years	Indeterminate
3571	?Anglian	Poor	Young/middle-aged adult	Female
3581	R-B	Good*	Birth - 3 months	Indeterminate

* Poor = <30% of burial preserved; Fair = >50% preserved; Good = >70% preserved.

Sex (Table 2)

Assessment of sex was carried out by the methods described in Bass (1987). The skull and pelvis contain most of the landmarks for sex identification and, fortunately, enough material remained for at least a tentative estimation of sex to be made in the case of all the adult burials. Subadult burials are listed as being of indeterminate sex since there are no reliable criteria that can be used before puberty.

Stature

There was only one complete adult long bone that could be measured in order to calculate stature. This was the tibia of the Iron Age individual from context 3115. The stature calculated by the method of Trotter (1970) for this individual was 166.1cm + 3.37cm (5 ft 5 in).

Cranial and post-cranial measurements

There were no complete skulls which would could be measured to calculate cranial indices.

Non-metric traits (cranial - Berry and Berry 1967; postcranial - Finnegan 1976)

Unfortunately, the fragmentary nature of cranial bones and deterioration of the surfaces of long bones made the examination of these traits very problematical. It is also necessary to have a large series in order to be able to draw any conclusions from these traits, some of which are thought to indicate a genetic relationship between individuals in a cemetery (e.g. metopism).

The Iron Age individual buried in context 1010 displayed a slight mandibular torus on both left and right jaws.

Platymeria and platycnemia

These are indices which are calculated to test antero-posterior flattening of the shaft of the femur and medio-lateral flattening of the tibia. These characteristics appear to be more marked in early populations than those of more recent date and have been thought to be related to squatting and other causes (Brothwell 1981). Indeed, both Iron Age individuals whose femora could be measured, exhibited platymeria (1010 -75.6 left and right; 3115 - 78.1 left and 75.0 right). The left tibia of the latter individual was mesocnemic (68.8) and the right platycnemic (62.9).

Dental disease

In contrast to the remainder of the skeleton, teeth were very well preserved in most contexts. The dentition is useful for age estimation (attrition), as an indicator of the quality and texture of the diet (caries, calculus and dental attrition) and as a guide to periods of illness or malnutrition in childhood (hypoplastic lines).

Dental attrition was scored by the method of Brothwell (1981) although intra-sample calibration was not possible in such a small sample. Calculus (mineralized plaque or tartar) and periodontal disease were assessed according to Brothwell's (1981) degrees of severity. Antemortem tooth loss can be caused by caries destroying a tooth which may then be extracted or shed naturally.

Bronze Age

Both dentitions were complete apart from the post-mortem loss of two mandibular incisors (532). The juvenile buried in context 529 showed hypoplasia of both maxillary first incisors and canines and of three mandibular molars. No caries were seen. The adult interred in the surrounding ditch (532) displayed no calculus or hypoplasia but there was a small occlusal caries in the right first mandibular molar.

Iron Age

The middle-aged male buried in the single inhumation grave (1010) had an unusual dentition. There was severe crowding of the maxillary teeth with a small supernumerary tooth embedded in the alveolar bone between the first and second incisors. Three canines had long roots with hooked ends and the fourth was missing antemortem. The same individual displayed hypoplasia of the maxillary second incisor and canines. He had heavy deposits of calculus on his second maxillary and mandibular molars.

The other Iron Age adult (3115) also had heavy deposits of calculus on his second and third mandibular molars. The subadult from context 3126 had hypoplasia of two canines, a maxillary central incisor and one premolar. The other subadult (3127) showed hypoplastic grooving of unerupted canines and incisors suggesting that death had been preceded by a recent period of ill-health.

Anglian

The adult inhumation (3571), which appeared to date from the Anglian period only retined the mandibular teeth and eight of these had been lost post-mortem. However, three of the remaining teeth showed enamel hypoplesia.

Palaeopathology

The only individual who was sufficiently well preserved for pathological conditions to be investigated was from the single Iron Age interment in a simple grave (1010). His skeleton suggested that he may have been involved in heavy manual work during life. His back had been subjected to some stress: there was compression of three cervical vertebrae, osteophytes of four cervical vertebrae and Schmorl's nodes of the fifth, sixth and seventh thoracic vertebrae. There was also eburnation, or polishing, of the inferior aspect of one cervical vertebra indicating incipient osteoarthritis in this region, which may be age related.

Schmorl's nodes involve the herniation of material from the intervertebral disk through the end plate of the vertebra, and may be caused by heavy labour at a young age. There was also a well-healed fracture in the left fibula of the same individual. This was quite well aligned and the broken bone would probably have been splinted naturally by the adjacent tibia.

The only other change was some apparent old well-healed infection of the frontal sinuses suggesting that there might have been some episodes of sinusitis.

Discussion

Although this report covers a small number of inhumations, there was enough information in the skeletal elements that remained to make it possible to assign an age to each individual.

It was also possible to ascribe at least a tentative sex to each adult individual in the sample. It is suggested that the male members of the population were accorded more importance in their burial rite than females since the only possible female from the Bronze and Iron Ages was found as a secondary deposit in a barrow ditch. Far more males than females were also found by Brothwell (1960) in his study of the Bronze Age population of Yorkshire.

The Romano-British infant came from a pit situated within the settlement. This is consistent with burial customs of the period when it was the rule that all adult interments took place extramurally and only babies who had not yet achieved the status of full community membership could be buried within or around the houses.

Dental pathology was recorded and this showed a normal picture for the prehistoric period. Caries (cavities) were few and this was normal before cane sugar started to be available in this country from the 12th century AD onwards. Attrition was quite severe in the one older individual in the sample reflecting a diet at least partly based on coarsely ground cereals (Moore and Corbett 1973). However, enamel hypoplasia affected quite a high proportion of teeth, particularly in the four Bronze Age individuals suggesting that there may have been periods of suboptimal nutrition or childhood illness.

THE ANIMAL BONES

by Dr. Sue Stallibrass

Methodology

Most of the material was recovered carefully by hand during excavation. The rest was recovered from the residues of the bulk samples taken for botanical remains (see Huntley).

For the hand-recovered collection, quantities of material have been assessed by weight and numbers of fragments. For the wet-sieved material, the samples were generally too small for investigations of the nature and degree of any bias against the recovery by hand of small animal bones, but they do provide some information concerning the small vertebrate fauna present at the site.

For the dated deposits, all fragments that retain (50% or more of) a diagnostic and unique anatomical zone have been recorded. Precise methodology and zones used are detailed in the archive report. The zones method permits direct comparisons between species with similar skeletons (such as cattle and sheep) and gives clear indications of relative frequencies of different parts of the body within each species. It also facilitates estimates of Minimum Numbers of Individuals (MNIs).

Fragments were identified by comparisons with modern reference collections held by the author and by the Biological Laboratory of the Department of Archaeology, University of Durham.

Since the bones of sheep and goat can be very similar, diagnostic elements were checked for specific identification. No bones were identified as goat, whereas 43 were identified as sheep. The remaining 334 sheep/goat bones could not be identified to genus. For the rest of this report sheep/goat bones are assumed to all derive from sheep.

Criteria for estimating absolute ages of animals by dental eruption and epiphysial fusion follow those established by Silver (1969) for modern animals, and the relative ages of mandibles are assessed by means of tooth wear analysis following Grant (1982). Anatomical measurements follow the guidelines of Driesch (1976). Withers heights estimates use Zalkin's (1960) factors for cattle, and Teichert's and Kiesewalter's (both in Driesch & Boessneck, 1974) for sheep and horses respectively.

Quantities

The total weight of hand-recovered animal bone (excluding one cattle and two sheep skeletons) was approximately 30kg, of which 85% by weight was from dated contexts. This consisted of 2,271 fragments of which 847 were recorded by zone (see Table 3). Material from the Anglian and, to a lesser extent, the Romano-British period dominated the collection.

Preservation

The states of preservation of the bones related to the varying burial conditions along the length of the pipeline. All of the prehistoric and a small amount of the Anglian material derives from contexts that were cut into chalk bedrock or gravels and these have suffered high levels of leaching. The surfaces of these bones are pitted from soil acids, which have destroyed or obscured surface features such as chewmarks, cutmarks and pathological alterations. However, bone loss is likely to be minimal, since delicate, neonatal bones survive in relatively good condition. Element, age and species ratios, therefore, are likely to be relatively unbiased by preservation conditions. All of the Romano-British and most of the Anglian material derives from contexts in the area of the 'ladder' settlement close to the Gypsey Race stream where calcareous colluvium and a relatively higher water-table have helped to preserve the bones in good condition.

Within the Romano-British and Anglian material with good surface preservation, 25% and 17% respectively have been chewed by dogs (sheep bones are more frequently affected than cattle bones), and 5% and 6% bear cutmarks (cattle bones are more frequently affected than sheep bones). Only about 1% of the bones from each period has been burnt.

Although both the Romano-British and the bulk of the Anglian material derive from the area of Romano-British settlement in the valley bottom there does not appear to be a problem with residuality. Although the average weight of the Anglian fragments is less than that of Romano-British fragments (12 *cf* 18gm), this can be explained by the greater proportion of bones of smaller animals in the Anglian collection (see Table 3). The proportion of loose teeth, which might be taken to indicate greater fragmentation due to disturbance is, in fact, greater for the Romano-British (15%) than for the Anglian (9%) collection. Occasional bones with atypical preservation conditions occur in a very few Anglian contexts, indicating the presence of intrusive (e.g. a nest of rats) or residual (e.g. a heavily rolled fragment of red deer antler) material.

Table 3: Distribution of recorded fragments of hand recovered animal bone

	Neo.	Neo./Bronze Age	Beaker	Bronze Age	Iron Age	Romano-British	Anglian	Med.	Total
Species									
Cattle	36	11	4	17	1	79	164	1	313
Sheep/Goat	9	2	2	10		56	212		291
Sheep	1			2		8	32		43
Pig	10			3		13	40		66
Horse		2				15	20		37
Dog							10		10
Cat							11		11
Red deer	2						3		5
Roe deer	1								1
Rabbit							1		1
rodent sp.						1			1

	Neo.	Neo./Bronze Age	Beaker	Bronze Age	Iron Age	Romano-British	Anglian	Med.	Total
Cattle-size	1					5	21		27
Sheep-size	2			1		3	14		20
Pig-size	1			1		1	2		5
Fowl (chicken)							3		3
Goose						1	6		7
Raven							1		1
bird sp.							1		1
Frog/toad						3	1		4
TOTALS	*63*	*15*	*6*	*34*	*1*	*185*	*542*	*1*	*847*

The prehistoric periods

Apart from one Iron Age cattle bone, the prehistoric animal bones date to the Neolithic and Bronze Age periods. A total of 118 fragments was recorded for anatomical zones from an overall total of 444. The very presence of animal bones in some of the prehistoric contexts is indicative of a level of activity during the prehistoric period. The nature of the material is ordinary food waste which suggests that there may have been a nearby (as yet unlocated?) settlement site.

The collections are *extremely* small, but changing proportions of the species (represented by numbers of zoned fragments recorded) may be significant. For the Neolithic period (N=56) the ratio of cattle:sheep:pig (C:S:P) is 64:18:18, whereas for the Bronze Age (N=32) the C:S:P ratio is 53:38:9. The comparatively high ratio of pig and cattle bones, together with the presence of deer remains in the Neolithic collection, *may* suggest that a greater amount of woodland was exploited in that period than at any time later.

The range of ages (neonatal to senile) of the cattle represented emphasises the varied roles possible for domestic cattle.

The paucity of animal bones from Iron Age deposits (only one bone with a recordable zone) probably reflects the shallow, truncated nature of the Iron Age contexts.

The Romano-British period

A total of 185 fragments was recorded for anatomical zones from an overall total of 371 recovered by hand from Romano-British contexts. The majority of these are from the later Roman period. The collection is very heavily dominated by the bones of the three main domestic species. The precise ratios of these vary slightly according to the method of quantification employed (see archive report) but all three methods concur that sheep and cattle remains occur in roughly similar numbers, with pig remains coming a poor third.

Despite the numbers of cattle and sheep individuals being very similar, the greater carcass size of cattle means that cattle would have provided much greater quantities of meat than sheep or goats. Estimates of meat weights based on MNIs (based on full dental data) give a ratio of 84:11:5 for beef:mutton:pork.

The age distribution suggests that more than half (Total N=5) of the cattle killed were raised for meat, whereas sheep were kept for a greater variety of products such as milk, wool and breeding stock. At least three of the sheep were female. Although pigs were almost certainly raised and slaughtered primarily for meat (their other main products include skins, manure, and earth-moving activities), their meat formed a relatively small part of the diet. Horse meat could have contributed a great deal, but there is no evidence for any removal of meat from the horse bones. The consumption of horseflesh by people was taboo in Roman culture. Similarly, there is no evidence for the consumption of dog flesh.

The sheep would have been well suited to using pastures up on the Wolds if these had been cleared of dense scrub or woodland (sheep are better adapted to grazing grass than to browsing shrubby vegetation). In contrast, the need for cattle to drink at least once, if not twice, a day means that they would have been better suited to the lusher pastures in the valley, closer to the Gypsey Race stream. The only other location possibly suitable for cattle close to the settlement is in Field 3600 where an existing spring (near Carr Plantation) and the excavated, infilled palaeochannel are situated.

Pigs, being omnivores, could have been kept in the settlement and fed on scraps, herded out in fields of stubble or of fallow, or driven out into any areas of woodland that might have existed in the neighbourhood.

The horses were probably kept in or close by the settlement and used for transport rather than traction. The local soils are light and could easily have been ploughed by cattle (by cows as well as by oxen). Horses were probably valued more for transporting goods and people between settlements, possibly along the Woldgate. The only estimation of size for any of the horses indicates a large pony.

Measurements for the cattle and sheep bones are also rather sparse. The post-cranial cattle bones include examples of the normal, unimproved Romano-British stock indistinguishable from the native 'Celtic shorthorn' of the preceding Iron Age period. However, despite the very small sample size, a few of the bones are notably larger in size or different in shape, and probably imply the presence of occasional animals of a substantially different type. Larger cattle, with different horncore morphology, have been noted alongside the native type at other Romano-British sites including York (O'Connor 1988).

Only two measured sheep/goat bones can be compared to measured examples from 4th-century AD well deposits at the nearby Rudston Roman villa (Chaplin & Barnetson 1980). These, an astragalus and a tibia, are both slightly larger than the largest measured examples at the villa, where the sample sizes are much greater (N=25 and N=18 respectively). The two measured bones from Caythorpe were not noted as being unusually large compared to the unmeasured examples, and appear to indicate that Caythorpe had some particularly large sheep. Whether these large sheep were simply males rather than females, or whether they represent improved stock cannot be assessed.

The collection from 3rd/4th- century AD Romano-British deposits at Caythorpe contrasts in other ways with that from Rudston Roman villa. The Rudston collection is heavily dominated by bones of sheep, many of them young, and element frequencies indicate primary butchery debris, possibly from surplus stock exported as carcasses. If this was the case, then the possibility that the rural site had larger sheep than the more "commercial" villa establishment is curious, and merits further investigation should more material become available for study.

The Anglian period

Whilst some of the Anglian contexts contain some residual pottery (mainly Romano-British), the bones themselves do not show any noteworthy signs of residuality (see discussion in the archive report). A total of 542 fragments was recorded by zones from an overall total of 1,449 fragments recovered from Anglian contexts.

Using the numbers of fragments with zones, the ratio of cattle:sheep:pigs is 37:54:8 (N=448). As with the Romano-British collection, this ratio varies according to the methodology employed, and pigs 'improve' their status when estimates of MNIs are utilised. Using all of the dental data, the MNIs indicate a ratio of 13:73:13 (N=30), and the more conservative estimates based on minimum numbers of elements give a ratio of 25:65:10 (N=20). It is clear from these ratios that sheep/goats were the most important species in terms of husbandry and butchery practices, although cattle would still have contributed more meat to the diet due to their greater carcass size. Even using the ratio based on full dental data, which puts sheep/goat at 73%, calculated meatweights give a corresponding ratio of 60:30:10 for beef: mutton: pork.

Most of the cattle died in the age range most suitable for culling for meat, and the sheep age at death distribution is even more biased towards young animals, with many dying in their first year of life.

The presence of very young cattle and sheep implies that the site was a producer site, raising its own livestock, in which case the more elderly animals (essential for breeding stock) must be represented elsewhere. This could be in an unexcavated area of the site, or at a different site altogether. There are few other sites in the region with contemporaneous faunal assemblages. The 5th/6th-century AD material from the Rudston villa site had equal numbers of cattle and sheep bones, and the epiphysial fusion evidence for the sheep indicates that 55% of the sheep bones derive from fully mature animals (the equivalent proportion at Caythorpe is 22%).

The Anglo-Saxon settlement at Nettleton Top was also occupied in the 6th century AD and is situated in the Lincolnshire Wolds, in a similar environment to Caythorpe. Preservation conditions at Nettleton were not very good, and fragments of cattle bones heavily outnumber those of sheep/goat in the hand-recovered collection (N=461 and N=52), but estimates of MNIs are very similar for the two species (Berg 1993). This balance is more similar to that seen in the Romano-British rather than the Anglian collection at Caythorpe. The age distributions of cattle and sheep also form a contrast, since the cattle remains at Nettleton derive from animals from a wide range of ages, and three of the six sheep/goat individuals represented by mandibular dental evidence were fully mature.

The most suitable site for comparisons with Caythorpe is West Heslerton, a prehistoric, Romano-British and Anglian settlement site in the Vale of Pickering. Unfortunately, although the animal bones have been catalogued, the final phasing is not yet available and so the data have not yet been fully analysed (Mulville & Berg, in prep.). The collections from this site are very large, and will provide an excellent database when the work is completed. A preliminary analysis of the sheep/goat mandibles from the early Saxon *grubenhäuser* suggests that approximately 30% of the sheep/goats died in their first year, with a total of 45% dying before the end of their second year (total N=492) (Berg, pers. comm.). The comparable percentages of Caythorpe sheep/goat mandibles (with a tiny sample of N=11) are 73% dying before 12 months and 82% dying before 24 months. Again, these data show how strong the bias towards the slaughter of young sheep is in the Caythorpe collection.

Although several Anglo-Saxon or Anglian sites in Britain have produced animal bone collections that are dominated by the bones of sheep/goats rather than cattle, the age distributions vary. Earlier and/or rural sites such as Caythorpe, Stonea in Cambridgeshire (Stallibrass, in press) and West Stow appear to have maintained flocks mainly for meat production, whilst later and/or urban sites (such as Hamwih and Thetford) have age distributions dominated by mature sheep. This has been interpreted as the development of sheep farming for wool production (Maltby 1981) but the apparent discrepancy could be due to the selective sale of elderly stock from producer sites to urban centres.

In order to assess the economic situation, the sites within a region need to be studied together, but this is not yet possible for the Yorkshire Wolds area, although the material from West Heslerton will greatly enhance our knowledge in the near future. From the adjacent Lincolnshire Wolds, there is another large collection of 6th-8th century AD animal bones that is scheduled to be studied soon, from the ecclesiastical site at Flixborough (Dobney, pers. comm). This should also add to our understanding of how sites inter-related economically during the Anglian period.

Similarly, the changes in livestock types for cattle need to be assessed within the region, as it is clear that the Anglian bones show greater variety than do the Romano-British cattle bones, although there are some indications that this greater range of sizes and morphological types had already begun to be established during the later Romano-British period.

Although the collection is dominated by bones of the major domestic food species, especially sheep and cattle, the presence of other species should not be overlooked. Besides pigs, which were possibly kept around the settlement site, large ponies and a variety of dogs could have been found in and around the village. Calculations of MNIs indicate the presence of the remains of six cattle (including one calf burial), 23 sheep (including one neonate), five pigs (including one neonate), two large ponies, four dogs and, possibly, one cat. All of these, together with the chickens and geese, presumably lived on the streets, in buildings, or in the adjacent fields.

The medieval period

Six bones were recovered, only one of which (a cattle bone) retains a recordable zone. This paucity simply reflects the fact that the centre of the settlement at Low Caythorpe had shifted slightly upstream by the medieval period, out of the area threatened by the pipeline.

Undated animal burials

Three undated animal burials were found, all of which are considered to have been disposed for functional reasons. A young adult (2½ - 5 years old) cattle skeleton in context 1160 came from a female or castrate animal of Celtic shorthorn type. The congenital absence of a second permanent premolar may suggest that it lived in the Romano-British rather than the medieval period.

Two male lambs of 3 - 5 months of very similar conformation were found in contexts 22 and 23. The sizes of the bones and the fact that both animals were naturally polled (i.e. hornless) makes a relatively recent (i.e. post-medieval or modern) date likely for them.

The wet-sieved material

The material is sparse, but highlights two factors when considered in conjunction with the hand-recovered material: (1) the very young ages of some of the animals, especially some of the sheep and pigs, and (2) the paucity of fish bones in the excavated contexts. In addition, the small vertebrates give a general indication of some of the local habitats.

The main focus for the Romano-British and the northern Anglian settlement was adjacent to the Gypsey Race stream, and yet fish remains are almost totally lacking from the samples. The deserted medieval village immediately upstream from the excavated area is associated with fish ponds. There is no technological reason why the Gypsey Race should not have been dammed prior to the medieval period, since water controlling structures such as dams and sluices have been found elsewhere in the north-east of England dating to the 7th/8th centuries (as at Wharram Percy, and on the island of Lindisfarne). Even if the stream were unaltered, it seems unlikely that the indigenous fish would have been large or prolific enough to have provided anything more than an occasional variation to the meat of domestic livestock. Since small fish are often consumed whole (i.e. gutted but not filleted), it is quite possible that their chewed and digested bones have escaped preservation or recovery at the site.

The absence of large, deep sea fish bones (e.g. cod and ling), probably does indicate a genuine lack or absence of such bones at the site. This would imply that if deep sea fish were traded in from the coast (Çaythorpe is less than 8kms from Bridlington) they were brought in as preserved fillets and have left no trace at the settlement site. Remains of marine shellfish such as mussels and oysters were sparse at the site, and might indicate that coastal resources generally were not utilised to any great extent by the inhabitants of Caythorpe.

The small vertebrates reflect the habitat immediately in and around the locality. Species identified are: fieldvole, woodmouse common shrew, watervole, frogs and toads. None of the deposits appeared to contain owl pellet material, and so it is probable that the contexts containing small vertebrate remains acted as pitfall traps for small, unwary animals living very close to (or actually in) the settlement. Prey animals brought back by hunters such as cats, foxes and dogs are likely to have been consumed beyond recovery (except for shrews, which taste unpleasant, and are often left uneaten).

The numbers of small vertebrate bones are too sparse to show any detailed changes through time, and the overall impression is one of stasis (i.e. rough grassland or some sort of shrubby cover), plus some damp habitats. It is not possible to test the tentative hypothesis that woodland was more widespread locally in the Neolithic period than in subsequent periods when the site was occupied.

Summary

Excavations along the pipeline have revealed information relating to domestic occupation refuse from the Neolithic, Bronze Age, Romano-British and Anglian periods. Sample sizes for the prehistoric periods are particularly small, but species ratios may hint at a relatively greater exploitation of woodland habitats in the Neolithic than in any of the later periods. Numbers of small vertebrates from wet-sieved bulk samples are too small to test this hypothesis.

Bones from the three major domestic species dominate all of the collections. Pig bones always derive from young animals that were probably raised primarily for meat production. The bones comprise 8-9% of the combined totals for cattle, sheep and pig bones in all periods from the Bronze Age onwards, having fallen from 18% in the extremely small Neolithic collection.

The age distributions and species ratios for cattle and sheep vary. In the prehistoric period, cattle bones dominate, and the range of ages reflects the multiple uses of cattle when alive (for traction, milk production, etc). The sheep bones, in contrast, are mostly from young animals probably raised for meat. In the Romano-British collection, numbers of cattle and sheep are almost equal, and bones from both species derive from animals of varying ages. The size ranges of some of the cattle and sheep bones may suggest that a few animals of larger types were present. In the Anglian collection, sheep outnumber cattle in terms of both numbers of identified bones and estimates of MNIs, but beef would still have contributed more to the diet than mutton. The greater size range of the cattle bones, together with varying horncore morphology, probably does signify the presence of cattle of a new type, but the sheep bones are all typical of the range seen at other Anglian and Anglo-Saxon sites in Britain. The bones of both cattle and sheep derive primarily from juveniles, emphasising the importance of meat production. The age ranges are not compatible with stock maintenance, and the remains of older animals must have been deposited elsewhere, possibly in an unexcavated portion of the site, possibly at other sites in the neighbourhood. There is no evidence for the raising of sheep for wool production, unless the wool producers were all exported, possibly to ecclesiastical or urban sites. Large ponies, possibly pack animals, were present at the site in both the Romano-British and the Anglian periods. Dogs were present in all periods (evidenced by chewed bones if not by their own bones).

It is not known how the Anglian inhabitants of the site related to the earlier, Romano-British population. The change in livestock types (particularly cattle), plus the change over towards a more sheep-dominated pattern of husbandry does suggest that there was some influence from Anglian people and/or culture by the 5th/7th centuries AD. This fits in with the changes in building styles and methods of construction, and changes in metalwork and pottery at the site.

Birds and wild mammals were hardly utilised in any of the periods, and the almost total lack of fish remains is interesting. Caythorpe is only 8kms from the North Sea coast, and yet marine species of fauna are represented merely by a few mollusc shells. It would be interesting to compare the results of this faunal study with those of other tradable items such as pottery and metalwork, to investigate the nature of the hinterland of the settlements at Caythorpe through time.

THE PLANT REMAINS

by Jacqueline P. Huntley

Standard methods of flotation were used on bulk samples, with flots and residues retained upon a 500 micron mesh. Material was identified by comparison with modern reference material belonging to the author.

Neolithic to Bronze Age

Carbonised hazelnut shell fragments were ubiquitous throughout, but dominant in seven of the Neolithic to Bronze Age pits. It is suggested that they were stored as a food resource in these pits although the possibility of rubbish disposal is not impossible. Two remaining Neolithic pits (contexts 054 and 1370) contained considerable amounts of cereal grain. The latter was dominated by, probably, *Triticum diccocon* (emmer) with many of the characteristic tear-drop shaped grains although definitive identification of grains to species is not reliable. A few indeterminable barley grains were present too. In addition to the wheat moderate numbers of apple/pear pips and whole fruits of crab apple *(Malus sylvestris)* were present. It seems clear that this was a further storage pit. The fill of pit 054 is interesting in that bread wheat *(Triticum aestivum)* grains, and one fragment of bread wheat chaff, were recorded. Hulled barley grains were present too. Although an unusual wheat species in the Neolithic, bread wheat is not unrecorded (Robinson *et al,* 1989).

Romano-British material

Preservation in these deposits was poor but hexaploid wheat and barley grains were most common. Associated wheat chaff was predominantly from spelt which is the species characteristic of the early centuries AD. Grassland and wet ground weed species were commonly represented suggesting some cultivation on the wetter soils of the valley bottom. One *Pisum sativum* (pea) was recovered.

The Anglian material

Barley grains were co-dominant with hexaploid wheat of which 30% (n=24) of the wheat was broad squat grains suggestive of bread wheat. Weed seeds were very sparse probably as a reflection of preservational conditions.

The medieval material

The fill of a medieval ditch produced an assemblage dominated by bread wheat. Given the overall rounded shape of the grains it is suggested that they belong to *Triticum aestivo-compactum*. The only non-cereal economic plant represented was *Linum usitatissimum* (flax).

Discussion

In general terms wheat species are dominant in all except one sample where the cereal grains, although abundant, were too poorly preserved to be identified. Emmer, tentatively identified since no chaff was recovered, is characteristic of the Neolithic material although bread wheat was present at that time. Hexaploid wheat(s) became most common from the Romano-British period. From the evidence of chaff it seems likely that this was spelt during the Romano-British period but bread wheat from the medieval period onwards. The Anglian samples remain intermediate. This trend is characteristic of the north as a whole although it is rarely observed on a single site.

The fact that little chaff was recovered indicates that most of the samples contain relatively clean grain and the low levels of weed seeds supports this. Although the grain represented is fully processed there is no reason to assume that it is other than locally produced.

Overall, the samples show clear trends of change in both the cereals grown and the soils under cultivation. People obviously have been cultivating the area for several millennia, exploiting the landscape as and when new crops and technologies became available. The importance of Caythorpe is that these changes over such periods of time are all recorded at the one site.

MOLLUSCAN ANALYSIS

by Dr A. Milles

Very few land snails were recovered from the samples taken to exract molluscs, although they were observed in some numbers in some of the bulk sieving flots (mostly in the modern burrowing species *Cecilioides aclcula).* Tests were carried out on all the samples to find out how calcareous the sediments were using a solution of dilute hydrochloric acid: none of the samples was highly calcareous. The lower carbonate content of the prehistoric fills in contrast to the higher carbonate content of the later fills may suggest that decalcification of the earlier sediments occurred during prehistory. A detailed molluscan report by Dr. A. Milles is in the site archive.

MISCELLANEOUS REPORTS

Metalwork

Iron Age

A short involuted bow brooch of La Tene II style accompanied a flexed inhumation (3126) under square barrow 3190. The brooch was in a poor condition, although on conservation traces of mineralised fur, possibly sheepskin, were visible on the bow and pin elements. Dr. I. M. Stead of the British Museum provided additional archival information on the brooch.

Roman

Three metal objects were recovered from the area of Romano-British settlement immediately to the south of the gas production site. The objects included a distorted fragment of a copper alloy bracelet, an iron penannular brooch and an iron chain link. A catalogue by Dr. M.C. Bishop is in the site archive.

Anglian

Two objects of Anglian metalwork were recovered from the excavations: a small iron knife corresponding to Bohner's Type A (AD 450-700) from the posthole structure, and part of a cast, copper alloy girdle hanger, with punched or stamped decoration from a pit situated close to the grubenhaus. A detailed report by Christine Haughton is in the site archive.

Worked bone

Two fragments of worked bone were recovered from Neolithic pits on the Wold summit. A catalogue and brief discussion by T.G. Manby is in the site archive.

Querns

Eleven quern fragments were identified, all from the area of Romano-British settlement immediately to the south of the gas production site. A catalogue by Dr. M.C. Bishop is in the site archive.

DATING

Samples from five features were submitted for radiocarbon dating. All of the samples, with the exception of a bone fragment from pit 1293 in boundary 1800, were dated by accelerator mass spectrometry at the IGNS laboratory, New Zealand. The calibrated date range for each sample is presented in the text at the 95% confidence level (2σ) followed by the measurement reference code and the uncalibrated date BP. The calibrated date in the text has been rounded up to the nearest decade (Mook 1986). The full range of dates at the 68% (lσ) and 95% (2σ) confidence levels is shown in Table 4 below.

Table 4: Radiocarbon calibration table.

Context	*Laboratory Reference*	*Measurement Reference*	*Radiocarbon Age BP*	*Calibrated Age Range 68% (1σ)*	*BC/AD (Probability) 95% (2σ)*
1005	RCD-2099	NZA 4705	3950±70	2575 to 2530 (25%) 2525 to 2450 (39%) 2440 to 2350 (36%)	2855 to 2820 (3%) 2660 to 2635 (2%) 2625 to 2275 (93%) 2245 to 2205 (2%)
1005	RCD-2100	NZA 4695	4160±80	2885 to 2855 (14%) 2825 to 2795 (15%) 2785 to 2655 (61 %) 2640 to 2620 (10%)	2915 to 2570 (97%) 2535 to 2505 (3%)
1072	RCD-2097	NZA 4701	2960±75	1305 to 1270 (12%) 1270 to 1060 (88%)	1405 to 995
1235	RCD-2101	NZA 4696	4320±80	3090 to 3065 (8%) 3040 to 2885 (88 %) 2795 to 2785 (4%)	3320 to 3230 (7%) 3180 to 3160 (1%) 3140 to 2865 (80%) 2815 to 2740 (8%) 2725 to 2695 (3%)
1308	RCD-2096	9/11/94	2170±80	365 to 275 (44%) 265 to 160 (50%) 135 to 125 (5%)	395 to 45
2438	RCD-2098	NZA 4703	1180±65	775 to 900 (83%) 910 to 945 (17%)	690 to 975

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EARLY ROADS TO THE SWALEDALE LEAD MINES

by Andrew Fleming

Summary

This paper reconstructs the routes of two roads, one Roman and medieval, the other medieval, which approached Swaledale from the south, and which led to the Marrick Moor area. The existence of these early roads emphasises the importance of this zone as a primary lead-producing area, and underlines the significance of the Ure as a riverine route along which lead could be taken to Aldborough/ Boroughbridge, for onward transport by water or road.

A Roman road to Swaledale

Fig. 1 indicates the course of an old road from Marrick Moor to Ulshaw, on the banks of the Ure between Middleham and Jervaulx. It can be easily identified on Ordnance survey maps (figs. 2-4). From Marrick village a lane leads in a south-easterly direction, to become Elerholme Lane as it descends the daleside towards the river Swale. At its Marrick end, Ellerholme Lane has been adapted into the medieval field system, so that it takes two right-angled bends, one not far from the village, the other some 500m further to the ESE. At the former, the original course of the early route is marked by a public footpath which cuts off the bend, and whose line was respected by the upper ends of two fields whose boundaries were marked on a map of 1782[1]. After descending the daleside, where it is indicated by a deep hollow-way, the road crossed the Swale at a ford called 'Eller Holm Wath' on the 1782 map. From there, the route went east along the line of the present road, through Stainton Middle Wood. There there are two deep hollow-ways here, which is not surprising considering that this section of road also carried traffic towards Ellerton and Grinton, not only from the south but also from the east, from Richmond via Downholme. At present, the junction of the road discussed here with the Downholme-Richmond road (at SE 099973) makes the latter route seem primary. Evidence from a 1694 map[2], and on the ground, suggests that Stainton Wood may have extended as far east as this in the Middle Ages, the old road from the south then being used primarily to reach the wood pasture here; at the wood-gate the through-route then kinked north, along the edge of the wood, before reaching the Downholme-Swaledale road.

The road now continues SE, to run past the SW end of the deserted medieval village of Walburn, a large planned settlement arranged along a NE-SW axis running between here and the SW end of Crowhill Gill. Just east of the cross-

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[1] NYCRO ZHP.

[2] NYCRO ZPT 26/15.

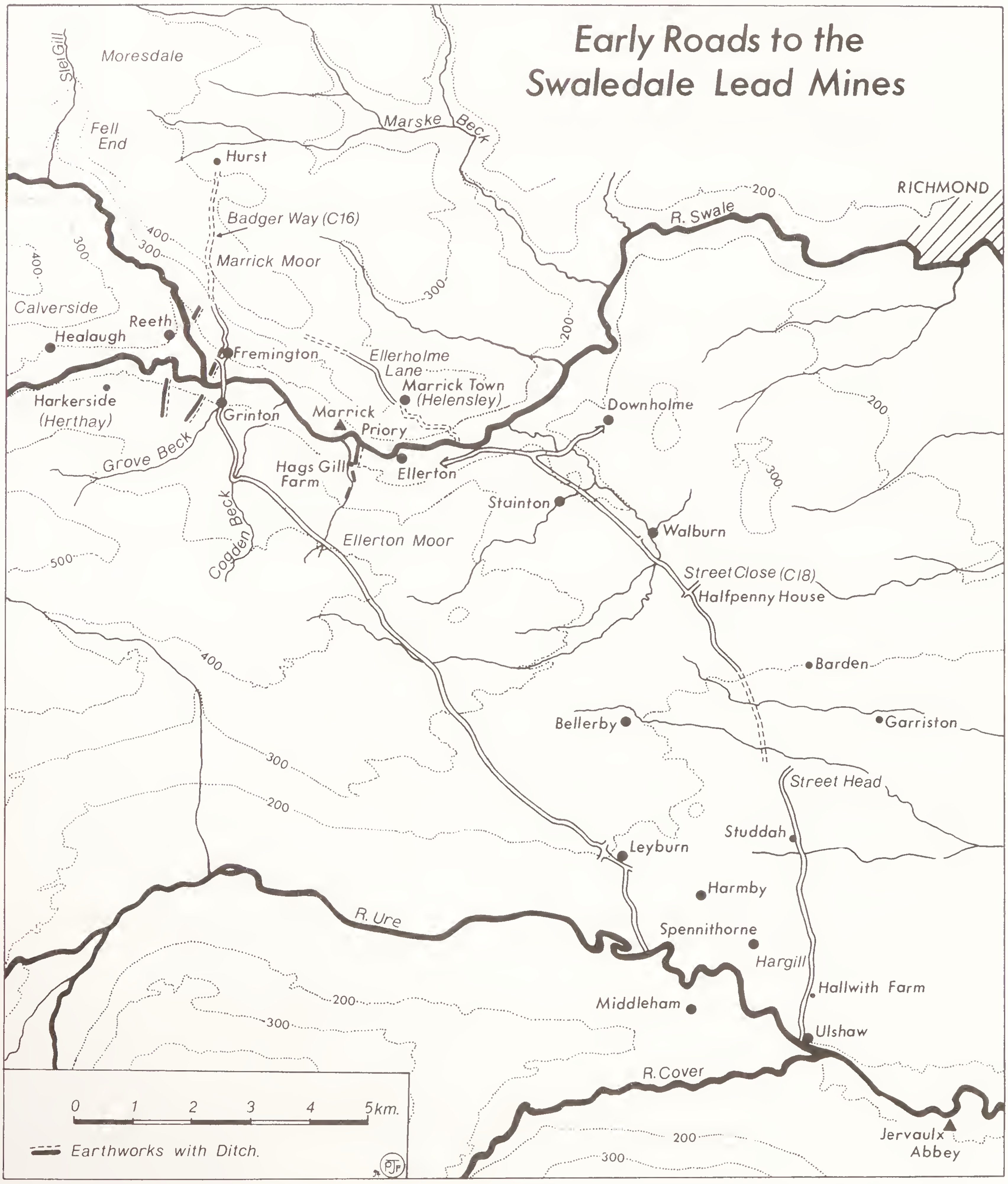

Fig. 1. General map of the two roads described, showing the Roman and medieval route from Ulshaw Bridge to Marrick Moor (to the east) and the medieval 'Badger Way' from Hurst to the Ure (western route). The locations of the Grinton-Fremington dykes are also indicated.

roads, in a belt of trees beside the road, a hollow-way on the course of the road has been straightened and 'adopted' to run along the SW edge of a parcel of medieval crofts; eventually it continues as a hollow-way beside the road, just before Boston Bridge. South of Halfpenny House the road continues further south; its course forms the part of the boundary separating the ancient parishes of Spennithorne and Hauxwell (and also the boundary separating Bellerby and

Barden townships, in Spennithorne and Hauxwell respectively). The fact that at Halfpenny House the course of the road is staggered along the Leyburn-Richmond road does not imply that the latter route has chronological priority; the layout here was simply tidied up in the turnpike era. The Butter Cross marked here on an early 18th century map[3] shows that this was the site of a rural market, sited logically enough where four routes meet in a location which was marginal in terms of land use.

After c. 1.5 km the present-day road turns east to Barden, and the course of the older road continues as a parish boundary, running first along a lane and then along the western edge of Forty Acre Wood. In terms of the medieval landscape, the road's boundary status is emphasised by the different land use zones through which it runs. It is clear from the field boundaries that Bellerby's strip fields ran right up to the parish boundary here, while Garriston and Barden probably had wood pasture zones here ('Forty Acre Wood' and ' Wood Hill' respectively). A late 12th century deed describing land at Bellerby mentions 'the green way from Walburn' *('usque in viridem viam de Waleburn')*[4] which must be a reference to this road. South of Burton Beck there is nothing to mark its course for some 800 m. There was a plantation here in the mid-19th century, which is shown on the First Edition Six Inch map, and perhaps the low demand for the use of the route in the post-medieval period led to is diversion further east. South of Intake House the line is taken up by a road in current use, running past Studdah and Hallwith Farm, before turning quite sharply SE and then south again to reach the Ure at Ulshaw Bridge.

This route is likely to date from before the Norman Conquest, given that at Walburn it pre-dates the crofts of a planned village. In the Stainton area the road cannot be shown to cut across the medieval field pattern, and indeed there is some evidence that the pattern changed along the line of the road. Further south, the road formed the boundary between two ancient parishes. But as the map shows, it has two 'Street' names along its course - Street Head, in the ancient parish of Spennithorne, and Street Close, near Halfpenny House at the SE end of Walburn township[5]. There is also the name 'Hargill' which is the Norse *hageil* or high street[6]. It also has a St. Ellen's Keld or Well just east of Marrick; as work in both West and South Yorkshire has shown[7], Roman roads tend to be accompanied by wells dedicated to St. Helen, St. Helena or St. Ellen. Jones demonstrated that 33 out of 132 parishes with St. Helen dedications or wells were located on or near Roman roads (and cf. the Welsh Roman roads known as 'Sarn Helen'), while only 8 out of a control sample of 132 randomly-selected parishes had this association[8]. As Jones showed, the history and etymology of the (St.) Helen tradition in Britain is complex, with indications that pre-Roman myths and cults were re-vitalised in various ways both in the Roman and Saxon periods. At Marrick the well was known as Sainte Elinkell in 1664[9]. What is more interesting is place-name reconstruction here. Marrick means 'the boundary ridge'[10] but there is no boundary ridge near the present-day village. The place-name must refer to the place beside the Swale where the church is located, and where the medieval nunnery was established. The boundary ridge would then be the linear earthwork across the river from Marrick; it is built on, and to some extent utilises, a moraine. The name would be derived from the hypothetical Old English word *raec* which means a long straight ridge such as a moraine (as in Escrick) or a linear earthwork (as in Reach in Cambridgeshire)[11]. Evidently Marrick Town was originally called something like Hellensley, Ellensley, or Hellingsley, judging by the names on a late 16th century map [12]; the name now survives in Helmsley House. Marrick Moor, or rather Hurst, is where a stamped lead pig dating from the time of Hadrian is said to have been discovered (and subsequently lost)[13]. As the road ascends the daleside towards Marrick village, it is clearly aiming to pass through the notch between Garnless Scar and the bluff immediately north of the village, and then on to Marrick Moor. In terms of 'normal' medieval traffic, of course, there would have been little reason to travel from Marrick village to Ulshaw Bridge or *vice versa*; in terms of lead traffic, there would have been every reason to pass from Ulshaw *through* Marrick, or rather Hellensley. The river Ure was apparently navigable in the Middle Ages as far as Jervaulx, only 2 km further east[14]. Obviously navigability in this context is not necessarily a permanent condition; a lot would depend on the draught of the boat, the weight of the load, and the amount of water in the river at a particular time. Duckham[15] has praised the qualities of the Yorkshire keel which was 'admirably suited to the task of navigating narrow, shallow rivers...in essence as well as in name she could trace a direct descent from the Viking longship'. What seems clear is that the upper course of the Swale was not navigable into the Vale of Mowbray. A change of vessel would have been necessary at the Richmond waterfalls; in any case the upper Swale has a steep gradient and is notorious for rising quickly and dangerously.

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[3] NYCRO ZAZ (M) 1.

[4] Clay, C. T. (ed.), *Early Yorkshire Charters* (1935) vol IV, p. 105.

[5] Street Head is marked on the First Edition O. S. 6 Inch map of 1857; Street Close is marked on an early 18th-century map of Walburn (NYCRO ZAZ (M) 1.).

[6] Hindle, B. P., *Roads and Trackways of the Lake District*(1984), p. 15.

[7] Faull,M. L. 'The Roman period' and 'The post-Roman British period', in Faull, M. L. and Moorhouse, S. A. (eds.) *West Yorkshire: an Archaeological Survey to A. D. 1500* (1981), pp. 155-6, 176-7 and map 10; Hey, D. *The Making of South Yorkshire* (1979), pp. 75, 84-5.

[8] Jones, G. 'Holy wells and the cult of St. Helen', *Landscape History*, 8 (1986), pp. 59-74.

A medieval counterpart

It is clear that the Roman road from Ulshaw to Marrick was also used in the Middle Ages. Possibly this was because, as well as having local uses (getting to Marrick from the Richmond-Grinton road, attending the market at Half Penny House, etc) it was the main route between the Vale of York and Swaledale. However, given the fact that it has survived so well, it may be that lead traffic continued to use the route in the Middle Ages. But it can also be argued that the Hurst area

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[9] NYCRO ZHP - MIC 1324 0028.

[10] Gelling, M. *Place-names in the landscape* (1984) p. 169.

[11] *Ibid*, p. 183.

[12] In the Brotherton Collection, Leeds University Library, and partially reproduced in Tyson, L. O., *A history of the manor and lead mines of Marrick, Swaledale* (1989), p. 12.

[13] Speight, H., *Romantic Richmondshire* (1897), p. 207.

[14] Edwards, J. F. and Hindle, B. P., 'The transportation system of medieval England and Wales', *Journal of Historical Geography* 17, 2 (1991), p. 126.

[15] Duckham, B. F. *Navigable rivers of Yorkshire* (1964), pp. 31-33.

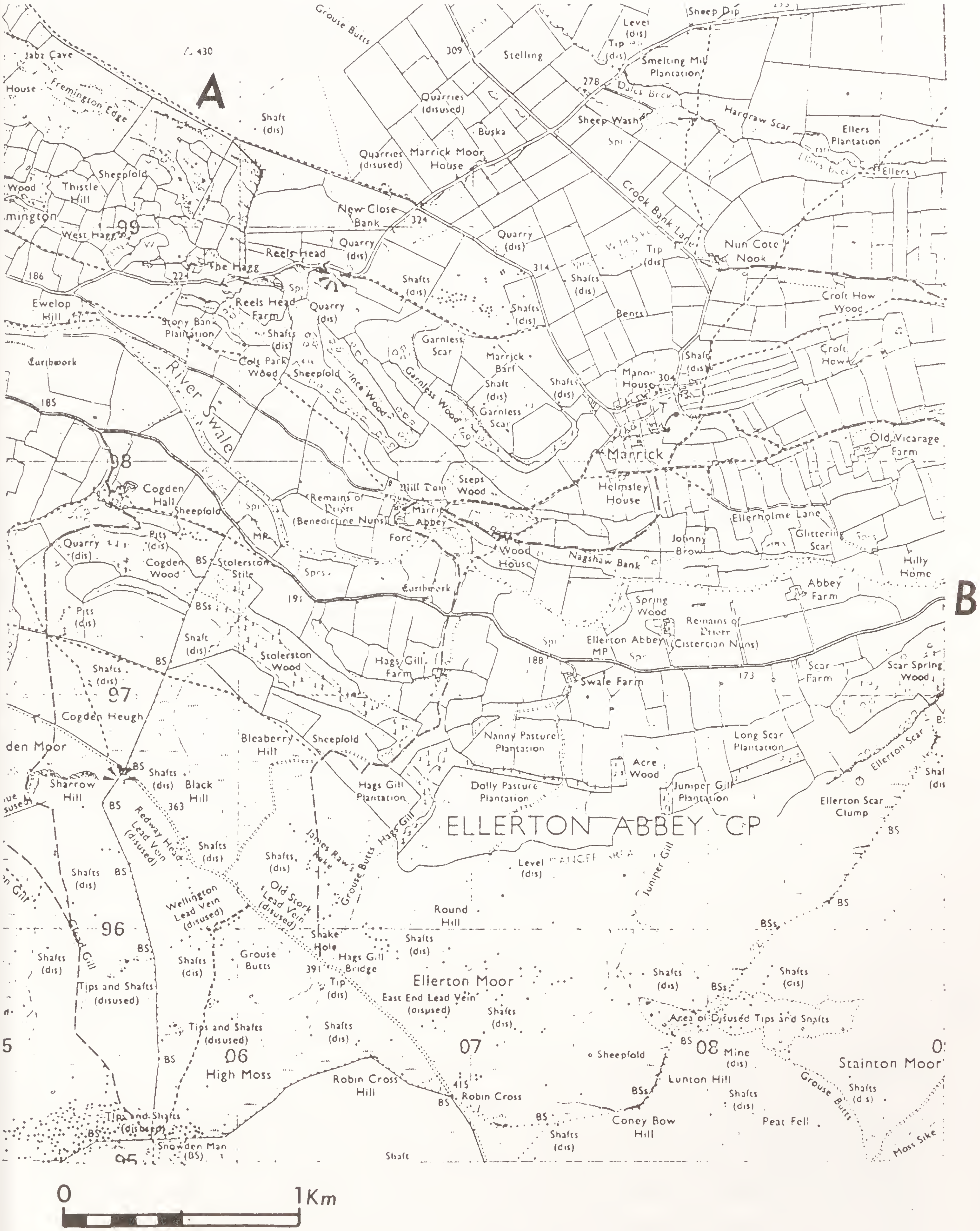

Fig. 2. Northern sector of Marrick Moor-Ulshaw Bridge route, from Marrick Moor to Ellerholme Wath (A-B).

was reached by a road which came from Middleham via Leyburn. The clue is provided by a late 16th century map[16] which marks 'the badger waie' which ran from the top of Fremington Edge (just above Cuckoo Hill) to Hurst, and, as far as one can judge from surface archeological traces, no further. It is still extant as a track today. 'Badger' is taken to mean (corn) merchant in recent writings about Swaledale, but as the Oxford English Dictionary points out, the word originally had no essential connection with corn[17]. The name is obviously comparable to 'Pedlars's Way, 'Chapman's Way', 'Jaggers Lane', as a name for a long distance trade route.

What would be the consequences of assuming that the Badger Way had come some distance before arriving at Hurst? It is still a track, descending the steep slopes of Fremington Edge before becoming a lane running through the eastern side of High Fremington, from where it can only be heading for a crossing of the Swale at Grinton (where a stone bridge existed in the early 16th century[18]. It is clear from air photographs that Grinton represents a somewhat 'shrunken' hamlet, which has been laid out as a series of tofts running along a north-south street; the original road from the east met this street at right angles along what is still a public right of way, diverging from a sharp bend made by the present B6270 road from Richmond. Grinton became the ecclesiastical centre and parish town of the whole of Upper Swaledale probably around AD 1100. But one cannot escape the fact that in agrarian terms Grinton is a seriously disadvantaged township by comparison with Reeth, with its major arable and meadow zones, or with Harkerside (medieval Herthay or Hercay) which, although facing north like Grinton, has better quality arable land and a more extensive zone of moorland common. In 1066, Reeth (which admittedly may have included the upper dale) was worth 14s and Ellerton was worth 13s; Grinton was worth 5s, the same as Fremington with its abundance of wood-pasture[19].

It is tempting to argue that Grinton was in essence a mining-dominated community by the Conquest, rich enough to pay for the construction of a church (there was no church at Reeth), and that post-Roman mining got going relatively early in this township in part because of ready access to the Badger Way; it may have been possible to levy tolls at the bridge. Grove Beck, on the moors to the south, is a rare kind of place-name, in that it refers to mining. Grinton may have started life as 'the settlement on the green' but it seems to have become a street-village, orientated up and down a north-facing slope and focussed on the river crossing, in complete contrast to neighbouring Herthay, Hellensley (later Marrick Town) and the first, high-level version of Healaugh (which was probably called Daggerston). These places, although built *along* axial routes, were spread along the contour, and relatively high on the daleside.

Presumably the Badger Way went south over the moors on something like the course of the present Leyburn-Grinton road. Not far south of Grinton, there is a 'feeder' route coming in from Marrick proper (i.e. Marrick Priory); still a public bridle-way, it runs via Haggs Gill Farm and along the ditch of the Ellerton linear

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[16] Tyson, L. O. op.cit. in n. 12, p. 12.

[17] Simpson, J. A. and Weiner, E. S. C. (eds.) *The Oxford English Dictionary* (1989), p.876.

[18] Toulmin Smith, L. (ed.) *Leland's Itinerary in England and Wales, 1535-1543*. (1964), vol v, p. 139.

[19] Faull, M. L and Stinson, M. (eds.) *Domesday Book: Yorkshire*. (1986), p. 311a.

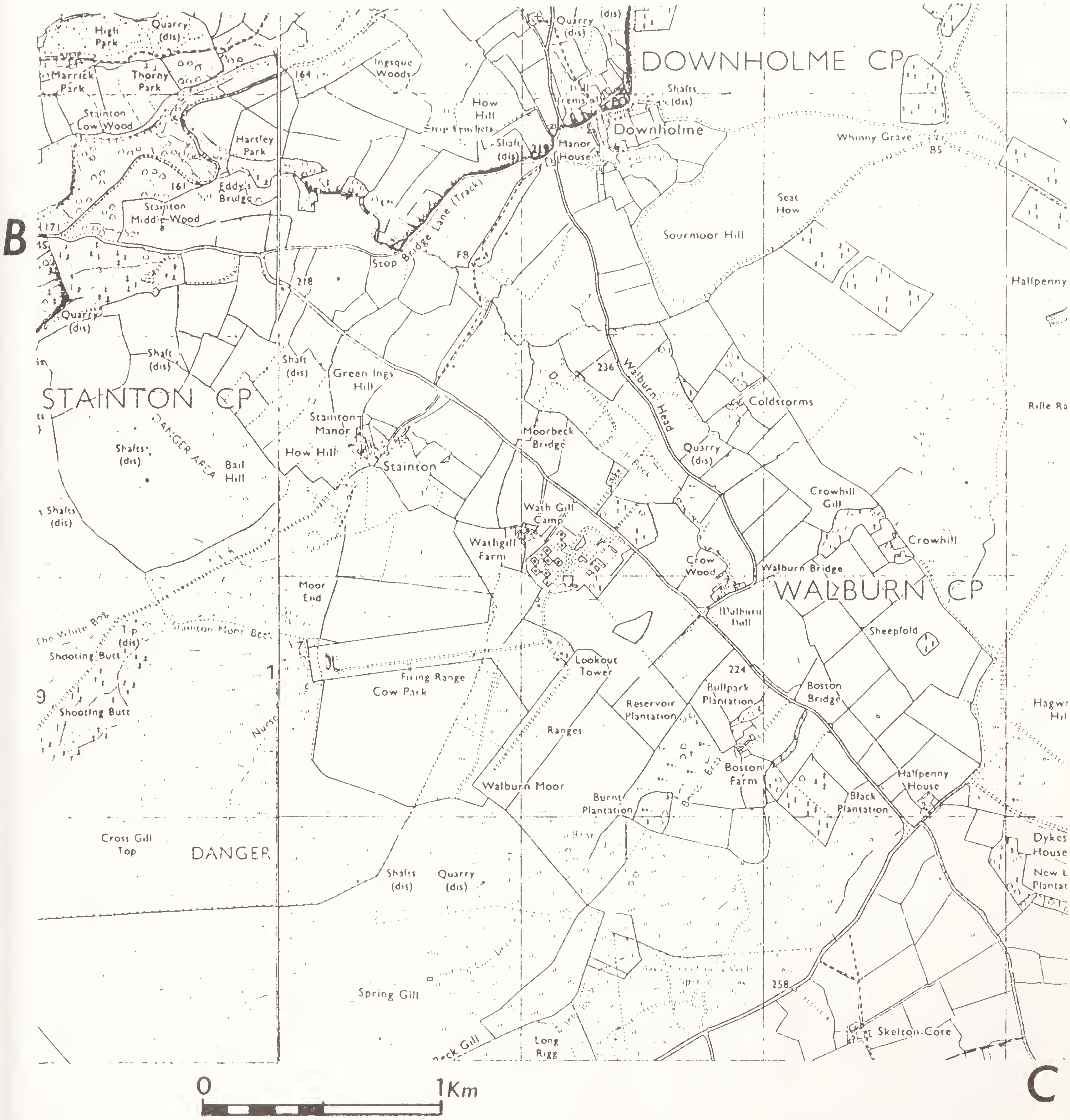

Fig. 3. Central sector of Marrick Moor-Ulshaw Bridge route, from Ellerholme Wath to Halfpenny House (B-C).

earthwork, crossing the Swale by a ford near the priory and ascending the opposite bank by a deep, curving hollow-way whose course was already established when the precinct wall of the nunnery was built, since the latter curves to accommodate it. It may be that the famous stepped path connecting the church with Marrick village (Hellensley), a path which certainly existed in the 16th century[20], had more to do with pack animals than with getting dryshod to church!

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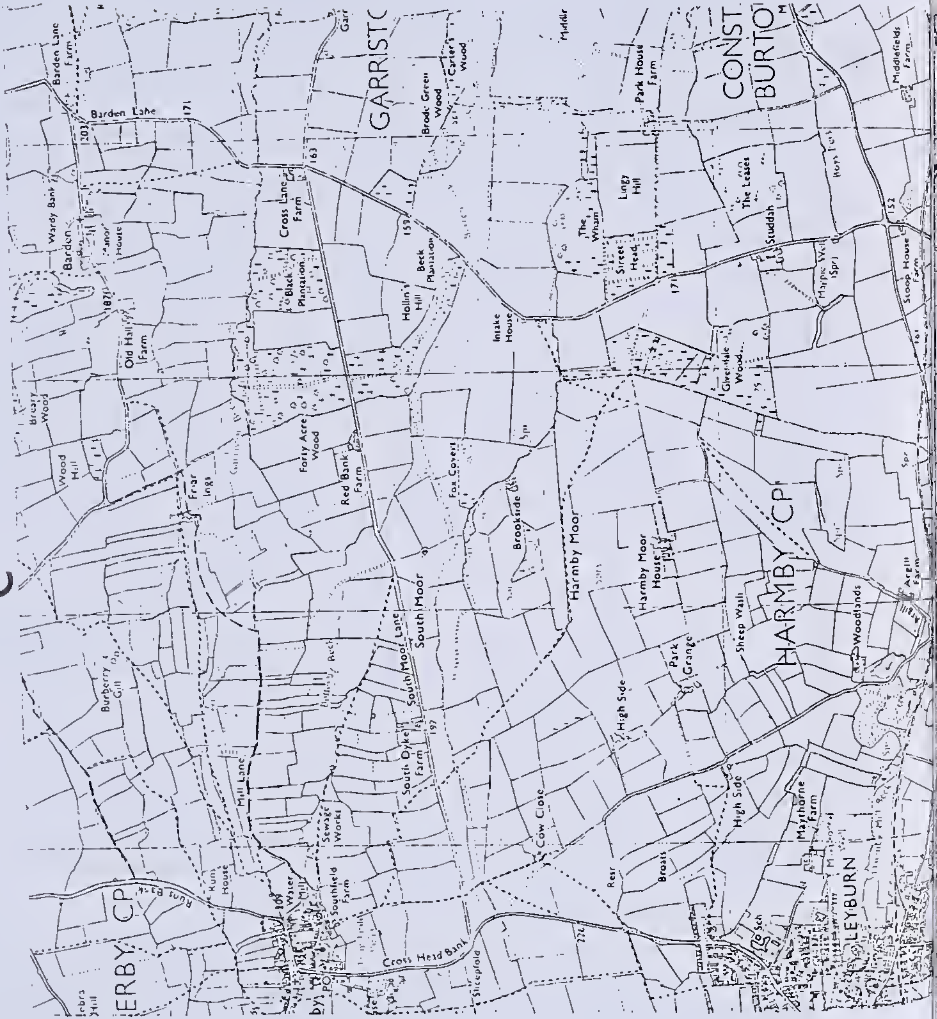
[20] See 1592 map, Brotherton Collection, Leeds University Library.

C


Barden Lane Farm
Barden Lane
Wardy Bank
Barden
Manor House
Old Hall Farm
Breary Wood
Wood Hill
Friar Ings
Burberry Gill
Cross Lane Farm
Black Plantation
Forty Acre Wood
Red Bank Farm
Mill Lane
Sewage Works
Southfield Farm
Water Mill
Kirk House
GARRISTO
Brock Green Wood
Carter's Wood
Beck Plantation
Hollins Hill
South Moor Lane
South Moor
South Dyke Farm
Fox Covert
Intake House
Brookside
Harmby Moor
Harmby Moor House
Cow Close
Cross Head Bank
Sheepfold
The Wham
Street Head
Lingy Hill
Park House Farm
High Side
Park Grange
Broats
Resr
CONST
BURTO
The Leases
Studdah
Harpie Well
Glovendale Wood
Sheep Wash
HARMBY CP
Woodlands
Mayth orne Farm
LEYBURN
Stoop House Farm
Middlefields Farm
Argill Farm
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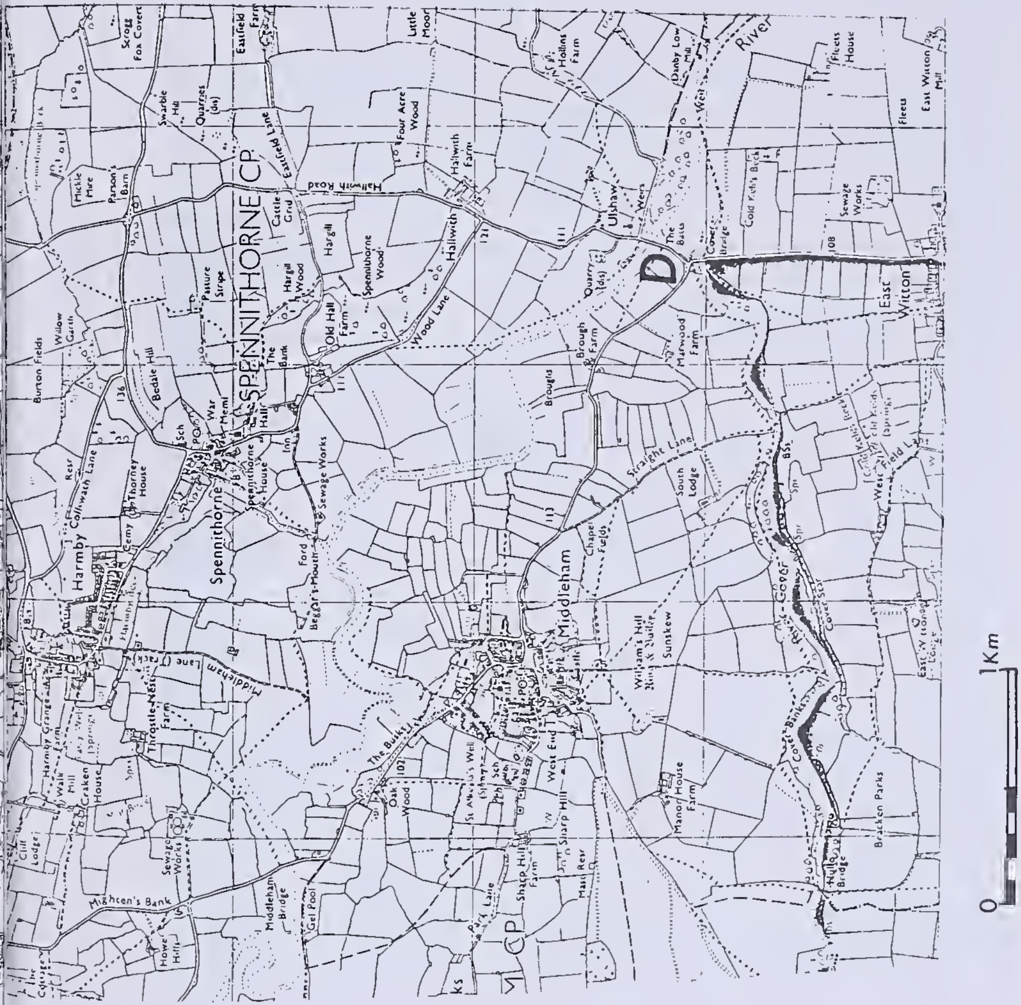

Fig. 4. Southern sector of Marrick Moor-Ulshaw Bridge route, from Halfpenny House to Ulshaw Bridge (C-D).

Taking this route might have been a good way of avoiding paying tolls, official or unofficial, at Grinton Bridge, and it would also have avoided the crossing of Cogden Beck. After passing through Leyburn, it would have been possible to reach the Ure at what is now Middleham Bridge, or to travel via Harmby and Spennithorne to reach Ulshaw Bridge.

Concluding discussion

The Marrick Moor-Ulshaw Bridge road, some 19.5 km in length, looks like a classic piece of Roman planning and engineering. It aims directly for its objective, at the same time taking the easiest route into Swaledale from the Vale of York. The product of the lead mines could have been taken from Ulshaw by water to *Isurium* (Aldborough), the cantonal capital, or on to York; it could also have been transferred to the major road network at either of these points. The importance of Pennine lead to the Roman authorities could hardly be more graphically demonstrated. The relationship between this road and the pattern of Romano-British settlement has yet to be shown; in Swaledale there are settlement sites and some pre-medieval field boundaries on the river terrace between Marrick Priory and Fremington, and also in the zone between Marrick Park and Ellerholme Lane, close to the course of the road discussed here, although field analysis is not very straightforward owing to the medieval overprint. At present the Stainton-Walburn area is rather a blank as far as early settlement is concerned, There are extensive areas of medieval arable land here, and opportunities for flying are very restricted owing to the fact that it is a military zone.

On the southern half of Marrick Moor, in a zone now called Copperthwaite Allotment, is a large coaxial land boundary system defined by low stone walls which are similar in appearance to the reaves of Dartmoor[21]. It runs back from Fremington Edge, orientated roughly SW-NE. Similar systems occur not very far away, on Harkerside Moor and on Calverside; work by the Swaledale Ancient Land Boundary Project shows that a few of these boundaries can be traced running down from the moors onto the dalesides, where they form primary elements in the ancient field systems which underlie the medieval strip fields and later walled closes here. These coaxial boundaries were probably laid out during the Iron Age, and it remains to be seen to what extent the upper portions of these land division systems continued in use in the Roman period. The Ellerton Moor pollen diagram, itself near a walled coaxial system or possibly within it, shows extensive clearance in the Iron Age and some regeneration around the time of the Roman Conquest, before further opening up of the landscape[22]. It is possible that the regeneration represented some retrenchment of the pattern of Iron Age land occupation, which might be expected to have affected the upper slopes first. If this was the case it is possible that Roman lead-mining could have taken place in a zone which was not in intensive use, and the road would have crossed an area of disused land boundaries. During our fieldwork we have not been able to trace these boundaries as far SW as the modern wall which runs along Fremington Edge.

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[21] Fleming, A. *The Dartmoor Reaves* (1988).

[22] Livett, E. and Switsur, R. (*pers. comm.*).

They must have been robbed out, but it is not clear whether this was done in ancient times or relatively recently. In the 16th century a 'waine waie' to Fell End ran along this edge[23].

The Marrick Moor-Ulshaw road evidently continued into the Middle Ages, with the usual interesting questions surrounding the continued veneration of St Ellen's Well, and, in this case, the possibility that it gave its name to Hellensley. What is less clear is the extent to which lead was taken out by this route. From the behaviour of the road as it runs through Walburn and Stainton (see above) it looks as if it became a more 'local' route in the later Middle Ages, being diverted along the side of the Walburn crofts and along the edge of Stainton wood; much the same thing seems to have happened in Marrick. This could be held to correlate with the rise in importance of the Badger Way. An obvious interpretation of the latter phenomenon is that by the time of the Norman Conquest, lead-mining on Grinton and Ellerton Moors was a productive enterprise. From the point of view of visiting merchants, the route took in two major lead fields; also, exporters of lead from Hurst could use a road already maintained by the lead-miners of Grinton and Ellerton - although they may well have had to pay a price (see above). The route from Hurst to the Ure involved a more difficult climb out of Swaledale than was the case for the old Roman road to Ulshaw, but it was also slightly shorter - some 17-18 kilometres in length.

It is also possible that the change of route had to do with altered political boundaries[24]. In pre-Conquest times, Hurst was in the territory of Hellensley/Marrick. If lead was to be exported from here, and it was not to travel east to the Tees - which was further away than the Ure - it would have been necessary to pass through one of two 'estates' or polities. One was centred on Downholme, an ancient parish in a relatively fertile area, whose centre lay just below a large hillfort (on How Hill). Downholme was central to outlying townships such as Stainton and Walburn, and probably also Skelton/Marske. It is quite possible that Hellensley/Marrick was part of this grouping. The road described above provided the link across the Swale, and, for what it is worth, the same man held both Downholme and Marrick in 1086[25]. The other polity was Swaledale, located in what is now called Upper Swaledale. I have argued elsewhere[26] that Upper Swaledale was an early British and then an early English polity, defined originally by the Grinton-Fremington linear earthworks, as well as the one at Ellerton which gave its name to Marrick (see above, and fig. 1). Swaledale later became both the parish of Grinton and the manor of Healaugh. Fremington, through which the Badger Way passed, was in an ambiguous position from a territorial point of view. Margaret Gelling has pointed out[27] that names in 'ingtun' usually represent small estates carved out of larger ones in the late pre-Conquest period. It is clear from the map that Fremington must once have formed part of Ellensley/Marrick, a large territory defined naturally by the Swale, Marske Beck and the Slei Gill/Moresdale line, a well-defined pass through the hills. Geographically, Fremington's obvious links were with Reeth and Grinton, both in Swaledale, and it is no surprise to find that Fremington became part of the parish of Grinton. It is also fairly clear that Fremington must have been the main zone of medieval wood pasture in this general area. Although there is some field evidence for medieval arable land around Fremington itself, much of the township is unsuitable for cultivation, especially towards its northern end.

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[23] Tyson, L O. op.cit. in n. 12, p. 12.

[24] Fleming, A. 'Swadal, Swar (and Erechwydd?): early medieval polities in Upper Swaledale', *Landscape History* 16 (1994), pp. 17-30. Fleming, A., 'The political geography of early medieval Swaledale' *(in manuscript).*

[25] Faull, M. L. and Stinson, M. (eds.) *Domesday Book: Yorkshire.* (1986), p. 311a.

[26] op. cit. in n. 24.

[27] Gelling, M. *Signposts to the past* (1978), pp. 178-84.

Fremington would have been a natural source of woodland products - including timber and charcoal for the mining and smelting of lead. In land-use terms, the opportunities were different from those of the more heavily-cultivated township of Reeth - whose wood pasture was a long way further west - and with the area around Helensley, which also included a good deal of arable land. So Hurst and Fremington were linked by proximity and timber supplies, in a way that Hurst and Downholme were not: and Fremington was linked with Grinton. In any case, the Downholme area would probably have had its own lead-mining interests by this time, on Stainton Moor for example, and its own supplies of wood.

Raistrick has already outlined the importance of Boroughbridge as an export centre for Pennine lead[28] and I have nothing to add to his account, except to point out that his comments on the re-use of Roman roads have now been superseded by the findings reported here. The importance of the Badger Way might suggest a significant role for Middleham in terms of the medieval lead market. That is a question for economic historians.

The discovery of the Roman road in particular reinforces the evidence of the lost lead pig, and suggests that, if archaeological traces of early lead mining can be found, Hurst, Marrick Moor, and perhaps Fell End, are areas where they should be sought.

Acknowledgements

This work was a spin-off of the Swaledale Ancient Land Boundaries Project, supported financially by Yorkshire Dales National Park, the University of Sheffield, and the Prehistoric Society. I thank the staffs of Yorkhire Dales National Park, the Archaeology Section of North Yorkshlre County Council, and North Yorkshire County Record Office, and in particular Robert White and Linda Smith.

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[28] Raistrick, A., *A History of lead mining in the Pennines* (1965), pp. 26-28, 36-37.

THE HACKNESS CROSS CRYPTIC INSCRIPTIONS

by Richard Sermon

Introduction

I first came across the Hackness cross in 1987 when I was digging with Terry Manby on his excavations at Thwing near Bridlington. At the time I was a student at Southampton University and for my undergraduate dissertation I had decided to look at Ogham inscriptions in Britain. This first visit to St Peter's church was rapid affair due to the fast turn around of the local bus service, leaving just enough time to photograph the cross. Since then I have been fascinated by the problems surrounding the cross and its inscriptions.

The monument consists of two damaged stone fragments from an 8th to 9th-century Anglian cross, presently located in the south aisle of St Peter's church at Hackness in North Yorkshire. The stones were discovered some time before 1848 in an outhouse on the former monastery site at Hackness Hall, and appear at some time to have been used as a gate post. The fragments are from the top and the bottom of the cross shaft, and together stand to a height of 1.5 metres. However, the original height of the monument would have been something like 4.5 metres. The stones are decorated in relief with vine scroll, interlacing, the feet of two beasts, and what is presumably the head of Jesus. In its original form the Hackness cross would have been equal to the famous examples from Bewcastle and Ruthwell. The cross also bears five inscriptions, two coded or cryptic inscriptions, and three in Latin -

(OEDI)L(BVR)GA SEMPER TENENT MEMORES COMMV(NITATE)S TVAE TE MATER AMANTISSIMA
Oedilburga your communities hold you always in memory most loving mother
TREL(..)OSA ABBATISSA OEDILBVRGA ORATE PR(O NOBIS)
Trel..osa Abbess Oedilburga pray for us
OEDILBV(RGA) BEATA A(D S)EMPER T(E REC)OLA(NT)
Blessed Oedilburga always may they remember you

Oedilburga was presumably abbess of the monastery at Hackness that according to Bede (Sherley-Price 1968, 249) was founded by Abbess Hilda in 680 AD; *That same night it pleased Almighty God to make her death (Hilda's) known by means of a vision in a monastery some considerable distance away, which she had founded that same year at Hackness.* Abbess Aethilberg (or Aethelburg) mentioned in the *Life of St Wilfrid by Eddius Stephanus* (Webb and Farmer 1983, 171) may in fact be a reference to Oedilburga. In this she is cited as a witness to events surrounding the death of King Aldfrith of Northumbria in 705 AD; *This verbatim account was given us by trustworthy witnesses, among whom were Abbess Aelffled, herself a king's daughter and Abbess Aethilberg.*

The first of the cryptic inscriptions is written in a form of Ogham, an alphabet developed in Ireland in the 4th century AD. The second inscription is written in a combination of Anglo-Saxon Runes and Tree-Runes.

THE OGHAM INSCRIPTION

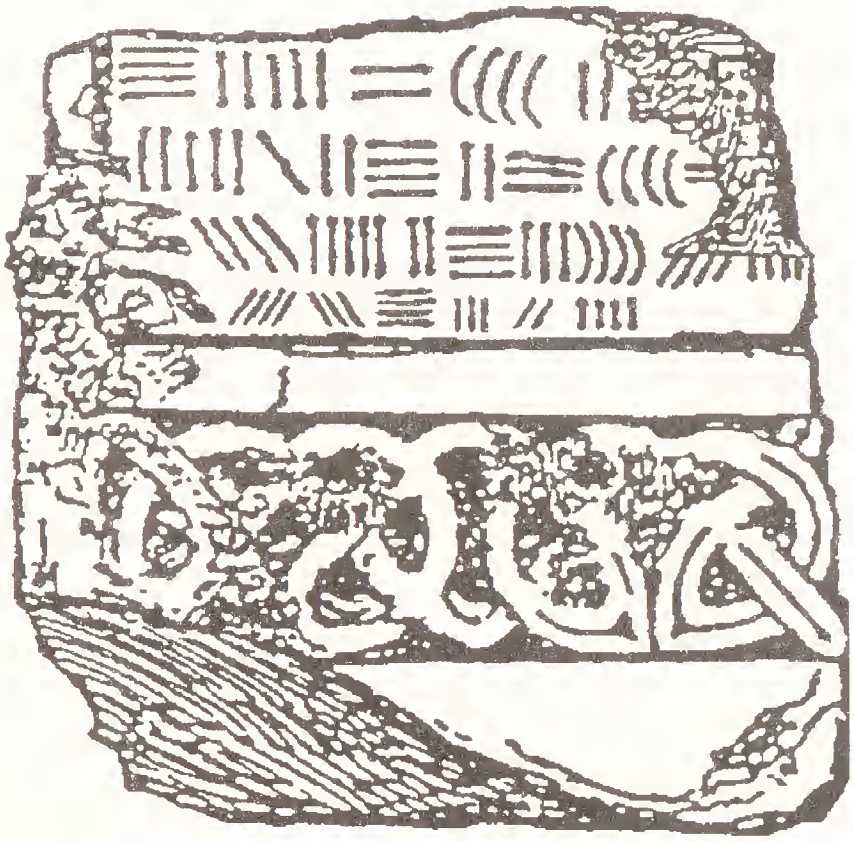
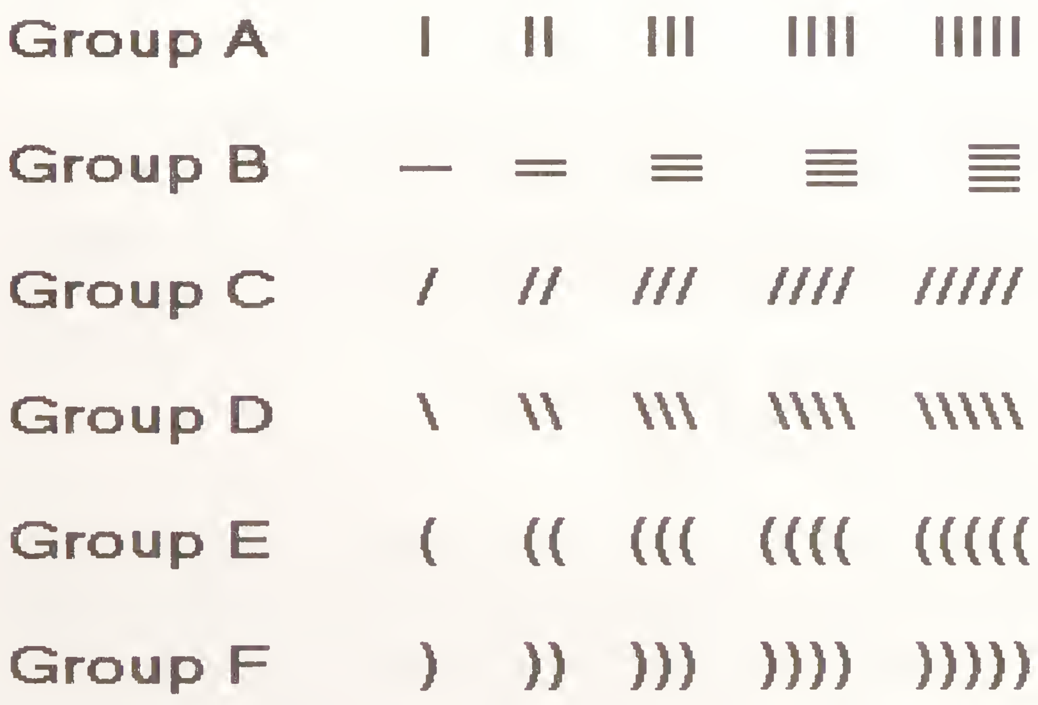


Fig.1. Hackness Ogham Inscription

The inscription is located on the south side of the lower fragment and consists of 27 letters forming a four line inscription. It has been suggested (Brown 1930, 52-75) that about another six lines may have been lost above.



Group A	I	II	III	IIII	IIIII
Group B	—	=	≡	≣	≣
Group C	/	//	///	////	/////
Group D	\	\\	\\\	\\\\	\\\\\
Group E	(	((	(((	((((	(((((
Group F	)	))	)))	))))	)))))

Fig.2. Hackness Ogham Alphabet

According to Macalister (1945, 478) the inscription shows only a superficial similarity to celtic Ogham but may have been invented by someone familiar with the Ogham system. The script was formed by dividing a fixed alphabet into groups of five letters and then using a particular type of stroke for each group, the letters within that group being denoted by the number of strokes employed. In the case of the Hackness Ogham this would give rise to an alphabet of 30 letters of which only 14 are used in the inscription.

Attempts to decipher the inscription have until now proven unsuccessful due to uncertainty about the alphabet upon which the Ogham characters are based. In any event the alphabet would have to consist of at least 30 letters, this would exclude Latin or Greek which have too few characters, leaving one of two options -

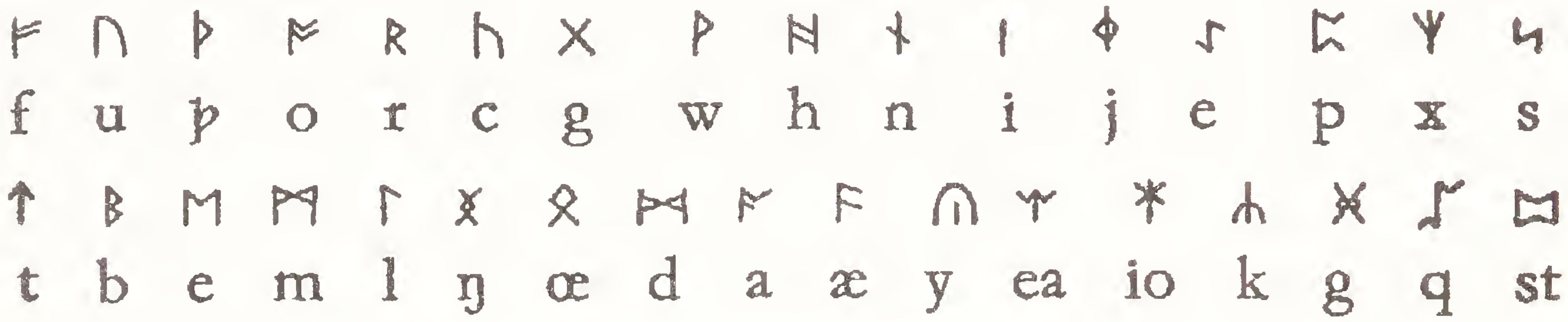

f u þ o r c g w h n i j e p x s
t b e m l ŋ œ d a æ y ea io k g q st

Fig.3. Runic Alphabet (Anglo-Saxon)

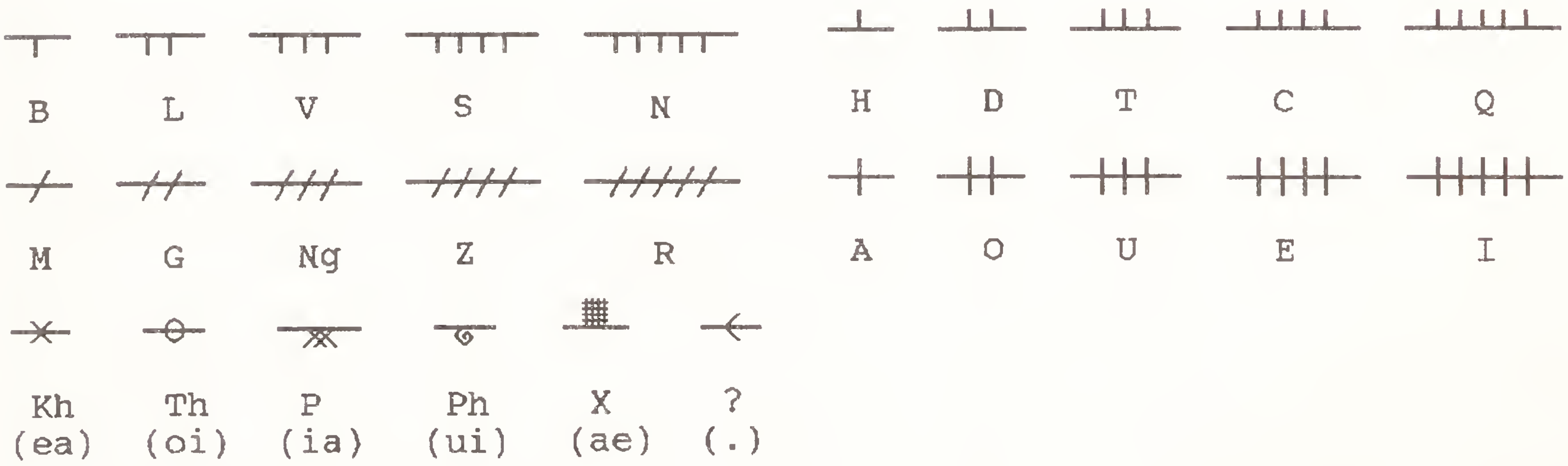


Fig.4. Ogham Alphabet (Old Irish)

However, if we divide either of the above alphabets into six groups of five letters, we then need to find out the order in which these letter groups were employed on the inscription. For the six letter groups this gives us a total of 720 different possible permutations. Nevertheless with the aid of a computer program (see appendix 1) written in Microsoft Q-Basic (1992) it was possible to generate all the permutations for each of the two alphabets.

Having generated a total of 1440 possible readings of the inscription it was then necessary to start examining each one in detail. The majority of the 720 readings based on the Runic alphabet contained completely unintelligible strings of consonants. On the other hand many of the readings based on the Ogham alphabet appeared to contained pronounceable syllables (see appendix 2).

Of these permutations number 309 appeared to be the most promising, for which the following Old Irish interpretation is offered. However, it should be noted that the letters C and U have been added to the beginning and the end of the first line, and the number of strokes in the letter at the end of the third line increased from four to five. All three of these additions to the inscription occur where either the surface is damaged or fragments of stone are missing -

Hackness Ogham Inscription

<table>
<tr><td>----</td><td>|||||</td><td>--</td><td>((((</td><td>||</td><td></td><td></td><td></td></tr>
<tr><td>E</td><td>R</td><td>O</td><td>S</td><td>G</td><td></td><td></td><td></td></tr>
<tr><td>|||||</td><td>\</td><td>||</td><td>----</td><td>||</td><td>---</td><td>((((</td><td>--</td></tr>
<tr><td>R</td><td>H</td><td>G</td><td>E</td><td>G</td><td>U</td><td>S</td><td>O</td></tr>
<tr><td>\\\\</td><td>|||||</td><td>||</td><td>----</td><td>|||</td><td>))))</td><td>////</td><td>|||||</td></tr>
<tr><td>C</td><td>R</td><td>G</td><td>E</td><td>Ng</td><td>Ph</td><td>Ui</td><td>R</td></tr>
<tr><td>////</td><td>\\\</td><td>----</td><td>|||</td><td>//</td><td>||||</td><td></td><td></td></tr>
<tr><td>Ui</td><td>T</td><td>E</td><td>Ng</td><td>Oi</td><td>Z</td><td></td><td></td></tr>
</table>

Hackness Ogham Alphabet

<table>
<tr><td>(</td><td>((</td><td>(((</td><td>((((</td><td>(((((</td></tr>
<tr><td>B</td><td>L</td><td>V</td><td>S</td><td>N</td></tr>
<tr><td>\</td><td>\\</td><td>\\\</td><td>\\\\</td><td>\\\\\</td></tr>
<tr><td>H</td><td>D</td><td>T</td><td>C</td><td>Q</td></tr>
<tr><td>|</td><td>||</td><td>|||</td><td>||||</td><td>|||||</td></tr>
<tr><td>M</td><td>G</td><td>Ng</td><td>Z</td><td>R</td></tr>
<tr><td>-</td><td>--</td><td>---</td><td>----</td><td>-----</td></tr>
<tr><td>A</td><td>O</td><td>U</td><td>E</td><td>I</td></tr>
<tr><td>)</td><td>))</td><td>)))</td><td>))))</td><td>)))))</td></tr>
<tr><td>Kh</td><td>Th</td><td>P</td><td>Ph</td><td>X</td></tr>
<tr><td>/</td><td>//</td><td>///</td><td>////</td><td>/////</td></tr>
<tr><td>Ea</td><td>Oi</td><td>Ia</td><td>Ui</td><td>Ae</td></tr>
</table>

Reconstruction	*Old Irish*	*Interpretation*
Ceros gu	Cross cu	Cross to
Rhge Guso	Ríg Ísu	King Jesus
crg eng phuir	carric an fóir	rock of help
uit Engoiz	uait Óengus	from Angus

An Ogham inscription in Old Irish might at first appear unusual in North Yorkshire during the 8th to 9th century, but not when we consider the celtic origins of Christianity in Northumbria. It was in 635 AD that Oswald king of Northumbria invited Aidan an Irish monk from Iona to found the first monastery at Lindisfarne. As Brown (1930, 52-75) pointed out, the cryptic inscriptions were probably devised by monks or nuns among whom Irish individuals would no doubt have been found; this would also account for the Irish name Angus at the end of the inscription.

It is also interesting to note that the third line of the inscription may be a biblical allusion to *Eben-ezer* the stone of help set up by Samuel following an Israelite victory over the Philistines. Those who made the cross would have used the Vulgate Bible and therefore known of the reference in its Latin form *Lapis adiutorii* -

Then Samuel took a stone, and set it between Mizpeh and Shen, and called the name of it Eben-ezer, saying hitherto hath the Lord helped us. (I Samuel , 7:12)

The contemporary cross at Bewcastle in Cumbria may have served a similar purpose. The Runic inscription, though altered by 19th-century antiquarians, would also appear to celebrate a victory; *This victory sign set up by Hwaetred Wothgaer Olwfwolthu in memory of Alcfrith a king and son of Oswiu pray for his soul.*

THE RUNIC INSCRIPTION

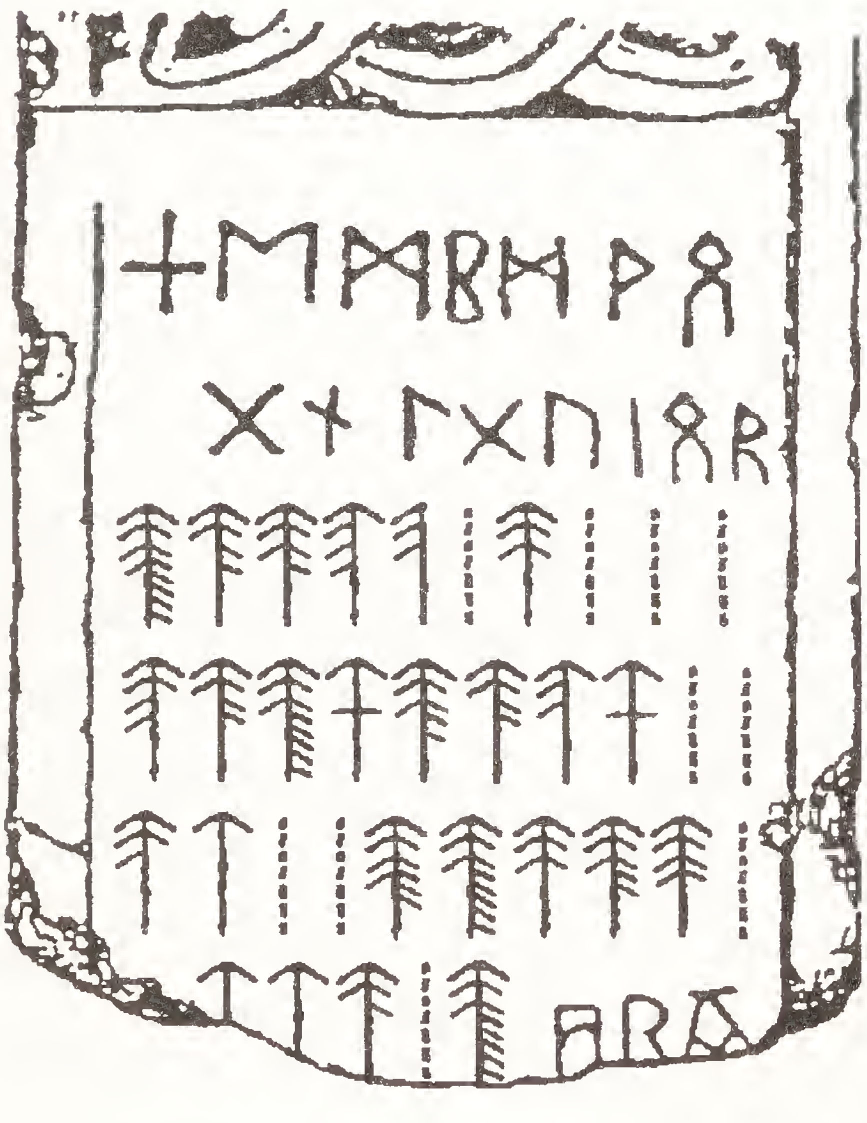


Fig. 5. Hackness Runic Inscription

The inscription is located on the east side of the upper fragment and consists of 15 Anglo-Saxon Runes, 35 Tree Runes and three Latin letters, combining to form a six line inscription.

The Tree Runes employed here are thought by Page (1973, 64-66) to be a form of *Hahalruna,* which are described in the 9th century *Isruna Tract,* and are similar to Norse runes from Maes Howe on Orkney. The Runic alphabet (futhorc) is split into four groups of eight letters. Each Rune is then represented by a vertical stemline, with the number of arms to the left indicating the group in which the Rune occurs and those to the right indicating its position within that group. This gives rise to an alphabet of 32 letters, of which 14 are identified on the inscription.

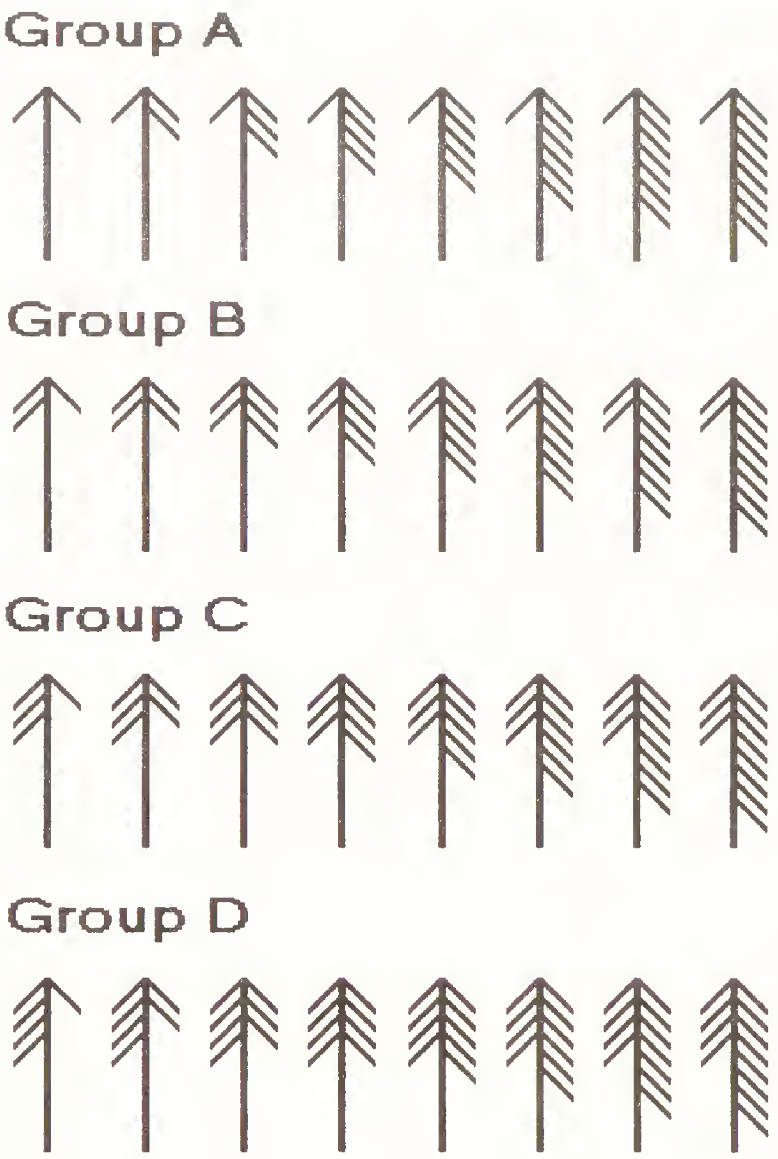


Fig. 6. Hackness Tree Rune Alphabet

Once again attempts to decipher the inscription have so far proven unsuccessful due to uncertainty about the alphabet upon which the Tree Rune characters are based. In any event the alphabet would have to consist of at least 32 letters; this would exclude Latin, Greek or Ogham which have too few characters, leaving us with the Anglo-Saxon Runic alphabet (see Fig 3).

However, if we divide the Anglo-Saxon Runic alphabet into four groups of eight letters, we then need to find out the order in which these letter groups were employed on the inscription. For the four letter groups this gives us a total of 24 different possible permutations. Again with the aid of a computer program it was possible to generate all the possible permutations. It was also decided to run the program using the Runic alphabet in reverse order, as some Norse inscriptions are known to use this method (Derolez 1954, 140-142).

The program generated 48 possible readings of the inscription, none of which appeared to form any intelligible pattern. It would therefore seem likely that the Tree Runes are now too fragmentary to ever be fully understood.

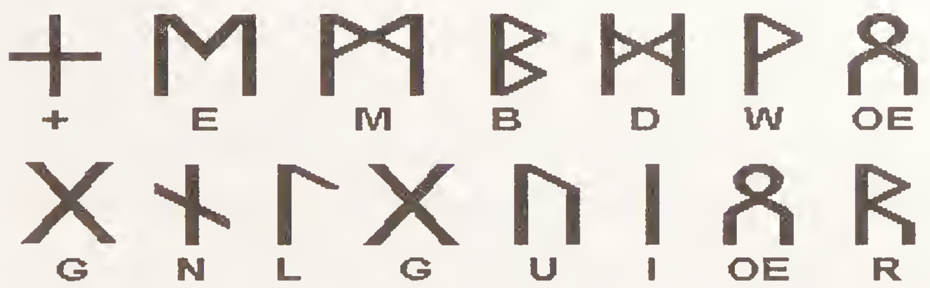


Fig. 7. Hackness Anglo-Saxon Runes

While the results of the computer program were disappointing, it was soon realised that more could be gleaned from the first two lines of the inscription (see above) which appeared to be an anagram containing the name Oedilburg. Such an interpretation would be in keeping with the three Latin inscriptions on the cross that also commemorate Abbess Oedilburg -

Reconstruction	Oedilburg gnoew me
Anglo-Saxon	Æþelburg cneow me
Interpretation	Aethelburg knew me

Here the words are spoken by the cross, a personification which is known elsewhere. The Ruthwell cross near Dumfries is also inscribed in Runic, with the Anglo-Saxon poem the *Dream of the Rood,* in which the cross itself describes the suffering of Jesus. Parallels also exist for Runic anagrams, the example below is taken from the *Exeter Book* of Anglo-Saxon poetry.

Riddle 24 (Exeter Book)

Ic eom wunderlicu wiht, wræsne mine stefne, hwilum
beorce swa hund, hwilu(m) blæte swa gat, hwilum græde swa
gos, hwilu(m) gielle swa hafoc, hwilu(m) ic onhyrge þone haswan
earn gufugles hleopor, hwilum glidan reorde muþe
gemæne, hwilum mæwes song, þær ic glado sitte, ᚷ mec
nemna swylce ᚫ & ᚱ , ᚩ fulleste ᚻ & ᛁ , nu ic haten eom
swa þa siex stafas sweotule becnaþ.

I am a wonderful wight, changing my voice, sometimes
barking as a hound, sometimes bleating as a goat, sometimes crying as
a goose, sometimes yelling as a hawk, sometimes I imitate the grey
eagle war-birds sound, sometimes the kite's speech to my mouth
is common, sometimes the mews song, there I gladly sit, **G** names
me, also **A** & **R,** **O** helps **H** & **I,** now I am named
as these six letters clearly show.

Suggested Solution - Higora (Magpie)

Finally the three Latin letters ORA at the end of the Runic inscription may be an abbreviation for the Latin orate or pray.

Conclusions

During this century the Hackness cross has been examined by a number of scholars including W G Collingwood (1927, 59-61), G B Brown (1930, 52-75) and R A S Macalister (1945, 478). However, it was Brown who provided the most comprehensive description, and set out the problems surrounding cryptic inscriptions upon which this present work is based.

Since that first visit to Hackness in the summer of 1987 I have been working periodically on the mathematical problems surrounding the decipherment of the cryptic inscriptions. During my first attempts I was using the Runic alphabet as a possible basis for the inscriptions. It was only later that I tried using ogham alphabet, a decision which now seems obvious in retrospect.

The breakthrough came in August 1993 when I had gone through all possible permutations for each of the two inscriptions. This resulted in the following interpretation which I believe fits the historical and cultural context of the monument -

Ogham Inscription	Cross to king Jesus rock of help from Angus
Runic Inscription	Aethelburg knew me .... pray

The Hackness cross is unique, and it seems unlikely that further examples of the cryptic inscriptions will be found. Although certain mathematical and computing techniques have been used in this study, at the end of the day what we have arrived at is an interpretation.

In March 1994 I gave a paper at Glasgow University (Huggett & Ryan 1995, 253-257) on the use of computers in the decipherment of the Hackness cross cryptic inscriptions. Articles based on that paper were then published in the *Daily Telegraph* (Highfield 1994, 9) *and New Scientist* (Geake 1994, 9).

Acknowledgements

The author would like to thank David Bowler for the biblical reference, Donald MacKenzie for guidance on Old Irish grammar and Mike Rains for advice on the Q-Basic programs.

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Appendix 1

```
DIM SHARED A, B, C, D, E, F
DIM SHARED X, Y, L$(6, 5)
DIM SHARED RECORD

DECLARE SUB DISPLAY ()
DECLARE SUB OGHAM ()
DECLARE SUB RUNIC ()

FOR A = 1 TO 6
  FOR B = 1 TO 6
    FOR C = 1 TO 6
      FOR D = 1 TO 6
        FOR E = 1 TO 6
          FOR F = 1 TO 6
            IF A + B + C + D + E + F = 21 AND A * B * C * D * E * F = 720 THEN
              RECORD = RECORD + 1
              CALL DISPLAY
            END IF
          NEXT
        NEXT
      NEXT
    NEXT
  NEXT
NEXT
END

SUB DISPLAY
  FOR X = 1 TO 6
    FOR Y = 1 TO 5
      IF X = 1 THEN L$(X, Y) = LTRIM$(STR$(A * 10 + Y))
      IF X = 2 THEN L$(X, Y) = LTRIM$(STR$(B * 10 + Y))
      IF X = 3 THEN L$(X, Y) = LTRIM$(STR$(C * 10 + Y))
      IF X = 4 THEN L$(X, Y) = LTRIM$(STR$(D * 10 + Y))
      IF X = 5 THEN L$(X, Y) = LTRIM$(STR$(E * 10 + Y))
      IF X = 6 THEN L$(X, Y) = LTRIM$(STR$(F * 10 + Y))
      CALL OGHAM 'OR CALL RUNIC
    NEXT
  NEXT
  CLS
  PRINT ""
  PRINT "Hackness Ogham Inscription Record :"; RECORD
  PRINT "Group Order :"; A; B; C; D; E; F
  PRINT ""
  PRINT "----   |||||  --     ((((   ||"
  PRINT L$(2, 4); L$(1, 5); L$(2, 2); L$(5, 4); L$(1, 2)
  PRINT ""
  PRINT "|||||  \      ||     ----   ||     ---    ((((   --"
  PRINT L$(1, 5); L$(4, 1); L$(1, 2); L$(2, 4); L$(1, 2); L$(2, 3); L$(5, 4); L$(2, 2)
  PRINT ""
  PRINT "\\\\   |||||  ||     ----   |||    ))))   ////   ||||"
  PRINT L$(4, 4); L$(1, 5); L$(1, 2); L$(2, 4); L$(1, 3); L$(6, 4); L$(3, 4); L$(1, 4)
  PRINT ""
  PRINT "////   \\\    ----   |||    //     ||||"
  PRINT L$(3, 4); L$(4, 3); L$(2, 4); L$(1, 3); L$(3, 2); L$(1, 4)
  PRINT ""
  PRINT ""
  INPUT "Press Enter to continue "; ANSWER$
  CLS
  PRINT ""
  PRINT "Group A      |      ||     |||    ||||   |||||"
  PRINT "             "; L$(1, 1); L$(1, 2); L$(1, 3); L$(1, 4); L$(1, 5)
  PRINT ""
  PRINT "Group B      -      --     ---    ----   -----"
  PRINT "             "; L$(2, 1); L$(2, 2); L$(2, 3); L$(2, 4); L$(2, 5)
  PRINT ""
  PRINT "Group C      /      //     ///    ////   /////"
  PRINT "             "; L$(3, 1); L$(3, 2); L$(3, 3); L$(3, 4); L$(3, 5)
  PRINT ""
  PRINT "Group D      \      \\     \\\    \\\\   \\\\\"
  PRINT "             "; L$(4, 1); L$(4, 2); L$(4, 3); L$(4, 4); L$(4, 5)
  PRINT ""
  PRINT "Group E      (      ((     (((    ((((   ((((("
  PRINT "             "; L$(5, 1); L$(5, 2); L$(5, 3); L$(5, 4); L$(5, 5)
  PRINT ""
  PRINT "Group F      )      ))     )))    ))))   )))))"
  PRINT "             "; L$(6, 1); L$(6, 2); L$(6, 3); L$(6, 4); L$(6, 5)
  PRINT ""
  PRINT ""
  INPUT "Press Enter to continue (Enter X to exit) "; ANSWER$
  IF UCASE$(ANSWER$) = "X" THEN END
END SUB
```

```
SUB OGHAM
  SELECT CASE L$(X, Y)
    CASE "11": L$(X, Y) = "b         "
    CASE "12": L$(X, Y) = "l         "
    CASE "13": L$(X, Y) = "v         "
    CASE "14": L$(X, Y) = "s         "
    CASE "15": L$(X, Y) = "n         "
    CASE "21": L$(X, Y) = "h         "
    CASE "22": L$(X, Y) = "d         "
    CASE "23": L$(X, Y) = "t         "
    CASE "24": L$(X, Y) = "c         "
    CASE "25": L$(X, Y) = "q         "
    CASE "31": L$(X, Y) = "m         "
    CASE "32": L$(X, Y) = "g         "
    CASE "33": L$(X, Y) = "ng        "
    CASE "34": L$(X, Y) = "z         "
    CASE "35": L$(X, Y) = "r         "
    CASE "41": L$(X, Y) = "a         "
    CASE "42": L$(X, Y) = "o         "
    CASE "43": L$(X, Y) = "u         "
    CASE "44": L$(X, Y) = "e         "
    CASE "45": L$(X, Y) = "i         "
    CASE "51": L$(X, Y) = "kh        "
    CASE "52": L$(X, Y) = "th        "
    CASE "53": L$(X, Y) = "p         "
    CASE "54": L$(X, Y) = "ph        "
    CASE "55": L$(X, Y) = "x         "
    CASE "61": L$(X, Y) = "ea        "
    CASE "62": L$(X, Y) = "oi        "
    CASE "63": L$(X, Y) = "ia        "
    CASE "64": L$(X, Y) = "ui        "
    CASE "65": L$(X, Y) = "ae        "
  END SELECT
END SUB
```

```
SUB RUNIC
  SELECT CASE L$(X, Y)
    CASE "11": L$(X, Y) = "f         "
    CASE "12": L$(X, Y) = "u         "
    CASE "13": L$(X, Y) = "th        "
    CASE "14": L$(X, Y) = "o         "
    CASE "15": L$(X, Y) = "r         "
    CASE "21": L$(X, Y) = "c         "
    CASE "22": L$(X, Y) = "g         "
    CASE "23": L$(X, Y) = "w         "
    CASE "24": L$(X, Y) = "h         "
    CASE "25": L$(X, Y) = "n         "
    CASE "31": L$(X, Y) = "i         "
    CASE "32": L$(X, Y) = "j         "
    CASE "33": L$(X, Y) = "e         "
    CASE "34": L$(X, Y) = "p         "
    CASE "35": L$(X, Y) = "x         "
    CASE "41": L$(X, Y) = "s         "
    CASE "42": L$(X, Y) = "t         "
    CASE "43": L$(X, Y) = "b         "
    CASE "44": L$(X, Y) = "e         "
    CASE "45": L$(X, Y) = "m         "
    CASE "51": L$(X, Y) = "l         "
    CASE "52": L$(X, Y) = "ng        "
    CASE "53": L$(X, Y) = "oe        "
    CASE "54": L$(X, Y) = "d         "
    CASE "55": L$(X, Y) = "a         "
    CASE "61": L$(X, Y) = "ae        "
    CASE "62": L$(X, Y) = "y         "
    CASE "63": L$(X, Y) = "ea        "
    CASE "64": L$(X, Y) = "io        "
    CASE "65": L$(X, Y) = "k         "
  END SELECT
END SUB
```

Appendix 2

```
Hackness Ogham Inscription Record : 297
Group Order : 3 4 2 5 1 6

----    |||||   --      ((((    ||
e       r       o       s       g

|||||   \       ||      ----    ||      ---     ((((    --
r       kh      g       e       g       u       s       o

\\\\    |||||   ||      ----    |||     ))))    ////    ||||
ph      r       g       e       ng      ui      c       z

////    \\\     ----    |||     //      ||||
c       p       e       ng      d       z


Group A     |       ||      |||     ||||    |||||
            m       g       ng      z       r

Group B     -       --      ---     ----    -----
            a       o       u       e       i

Group C     /       //      ///     ////    /////
            h       d       t       c       q

Group D     \       \\      \\\     \\\\    \\\\\
            kh      th      p       ph      x

Group E     (       ((      (((     ((((    (((((
            b       l       v       s       n

Group F     )       ))      )))     ))))    )))))
            ea      oi      ia      ui      ae
```

```
Hackness Ogham Inscription Record : 305
Group Order : 3 4 5 6 1 2

----    |||||   --      ((((    ||
e       r       o       s       g

|||||   \       ||      ----    ||      ---     ((((    --
r       ea      g       e       g       u       s       o

\\\\    |||||   ||      ----    |||     ))))    ////    ||||
ui      r       g       e       ng      c       ph      z

////    \\\     ----    |||     //      ||||
ph      ia      e       ng      th      z


Group A     |       ||      |||     ||||    |||||
            m       g       ng      z       r

Group B     -       --      ---     ----    -----
            a       o       u       e       i

Group C     /       //      ///     ////    /////
            kh      th      p       ph      x

Group D     \       \\      \\\     \\\\    \\\\\
            ea      oi      ia      ui      ae

Group E     (       ((      (((     ((((    (((((
            b       l       v       s       n

Group F     )       ))      )))     ))))    )))))"
            h       d       t       c       q
```

```
Hackness Ogham Inscription Record : 299
Group Order : 3 4 2 6 1 5

----   |||||  --     ((((   ||
e      r      o      s      g

|||||  \      ||     ----   ||     ---    ((((   --
r      ea     g      e      g      u      s      o

\\\\   |||||  ||     ----   |||    ))))   ////   ||||
ui     r      g      e      ng     ph     c      z

////   \\\    ----   |||    //     ||||
c      ia     e      ng     d      z


Group A      |      ||     |||    ||||   |||||
             m      g      ng     z      r

Group B      -      --     ---    ----   -----
             a      o      u      e      i

Group C      /      //     ///    ////   /////
             h      d      t      c      q

Group D      \      \\     \\\    \\\\   \\\\\
             ea     oi     ia     ui     ae

Group E      (      ((     (((    ((((   (((((
             b      l      v      s      n

Group F      )      ))     )))    ))))   )))))
             kh     th     p      ph     x
```

```
Hackness Ogham Inscription Record : 303
Group Order : 3 4 5 2 1 6

----   |||||  --     ((((   ||
e      r      o      s      g

|||||  \      ||     ----   ||     ---    ((((   --
r      h      g      e      g      u      s      o

\\\\   |||||  ||     ----   |||    ))))   ////   ||||
c      r      g      e      ng     ui     ph     z

////   \\\    ----   |||    //     ||||
ph     t      e      ng     th     z


Group A      |      ||     |||    ||||   |||||
             m      g      ng     z      r

Group B      -      --     ---    ----   -----
             a      o      u      e      i

Group C      /      //     ///    ////   /////
             kh     th     p      ph     x

Group D      \      \\     \\\    \\\\   \\\\\
             h      d      t      c      q

Group E      (      ((     (((    ((((   (((((
             b      l      v      s      n

Group F      )      ))     )))    ))))   )))))
             ea     oi     ia     ui     ae
```

```
Hackness Ogham Inscription Record : 309
Group Order : 3 4 6 2 1 5

----   |||||  --     ((((   ||
e      r      o      s      g

|||||  \      ||     ----   ||     ---    ((((   --
r      h      g      e      g      u      s      o

\\\\   |||||  ||     ----   |||    ))))   ////   ||||
c      r      g      e      ng     ph     ui     z

////   \\\    ----   |||    //     ||||
ui     t      e      ng     oi     z


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THE FOURTEENTH-CENTURY MONUMENTS IN THE SALTMARSHE CHAPEL AT HOWDEN, YORKSHIRE: THEIR HISTORY AND CONTEXT

by Sally Badham, Brian Gittos and Moira Gittos

Introduction

Opening off the south transept of the Collegiate Church of St. Peter and St. Paul, Howden in the East Riding of Yorkshire is a chapel which has long been associated with the families of Metham and Saltmarshe. Various members of these families were buried there and a number of important mediaeval monuments to them remain (Plate 1). In parallel with the chequered history of the building these monuments have suffered from many confusing alterations and re-arrangements. A multi-disciplinary approach has been adopted in order to understand the monuments and their context.

The number of descriptive and interpretative accounts of the Metham and Saltmarshe monuments is considerable and surprisingly so for what was only a Collegiate Church in a small market town. Much of what has been written over the last 150 years reiterates earlier material, but Canon Keeton's recent research has brought a fresh approach.[1] His account is a considerable advance on what had previously been written about the monuments, though still leaving some points without a satisfactory explanation. He writes:

> 'The Saltmarshe tomb, now in the centre, lay adjacent to the south wall by the railings until the Saltmarshes had it placed in the centre last century. The two Metham effigies, now under the stone ogee canopy, earlier lay with their heads against the pillar supporting the arcades, pointing east, and a partition divided the effigies, traces of which are discernible on the east side of the pillar. A 17th century drawing shows the statue now on the stone chest in the Lady Chapel lying under this canopy (though clearly not belonging there) and an inscription "... IOHANNIS DE METHAM QUONDAM RECTORIS ECCLESIE DE PATRINGTON QUI OBIIT XVIIJ ... AUG ..." which means "... of John de Metham, once Rector of the Church of Patrington, who died on the 18th ... of August ...". John de Metham was Rector of Patrington from 1379 to 1399. The two Metham effigies may have been brought here from the choir in the 17th century together with the Metham and Hamilton shields. The two niches on either side of the arch are clearly later insertions and interfere with the crockets on the arch. Other pieces of carved stone have also been inserted into this wall.'[2]

That all has not hitherto been satisfactorily explained can be illustrated by presenting just a few of the problems of the Saltmarshe chapel and its monuments:

1. the tomb panels which support the Saltmarshe effigy in the centre of the chapel are in a different sculptural style than the figure of the knight itself;
2. different monuments are known to have occupied the tomb recess in the north wall at various times;

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[1] B. Keeton, *A Guide Book to Howden Minster,* 2nd edition (1987).

[2] *Ibid.,* 13.

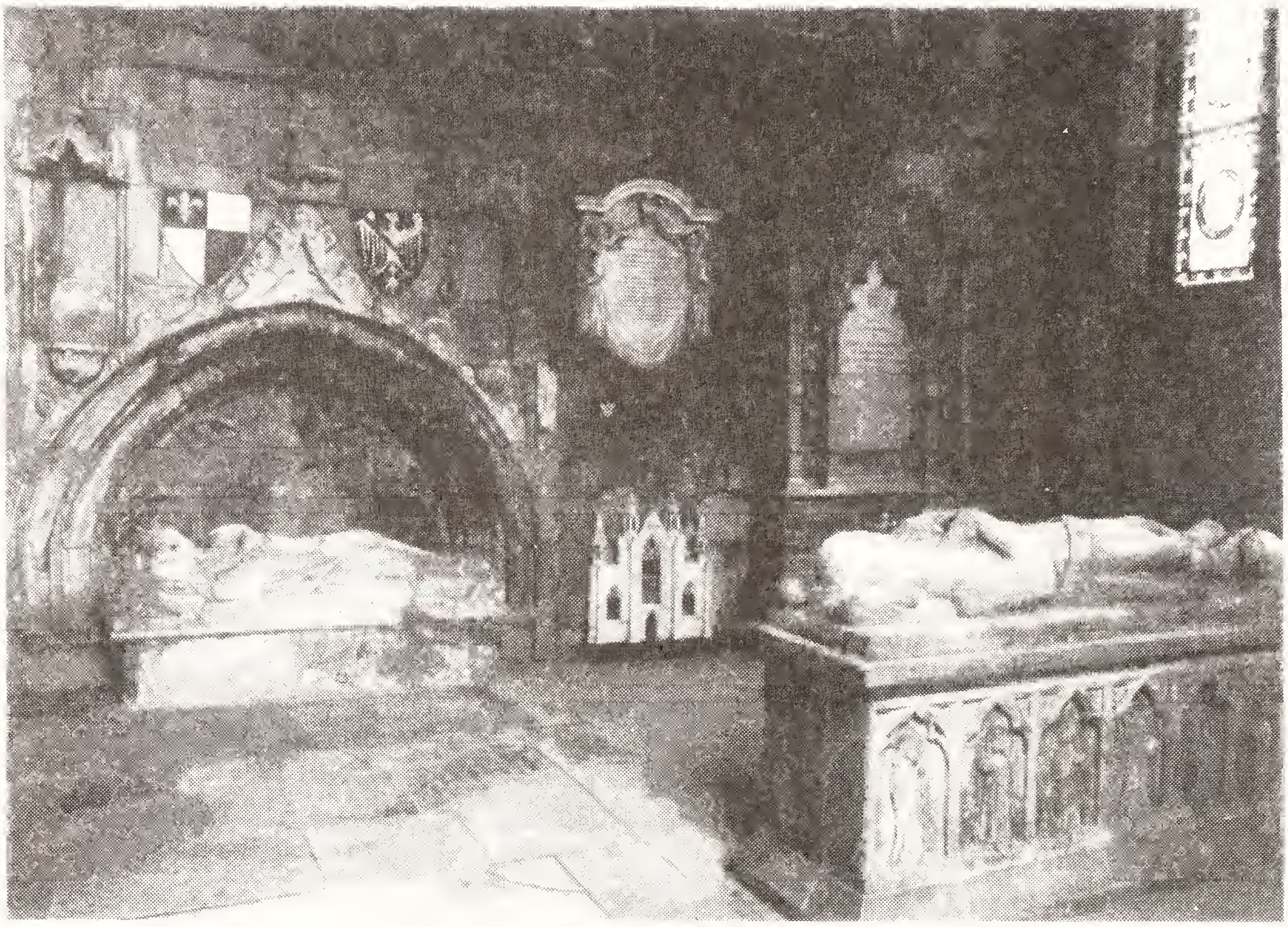

Plate 1. The South Transept Chapel with the Saltmarshe effigy on the altar tomb in the foreground and the de Metham figures in the tomb recess behind. Photo. S. F. Badham.

3. the effigies which now occupy the tomb recess have both suffered deliberate mutilation of an extraordinary nature;
4. the statue on the stone chest in the Lady Chapel appears to have been conceived as a standing figure and thus is unlikely to have lain in a tomb recess;
5. the extent of the nineteenth century restoration and alterations to the chapel do not appear fully to have been appreciated by modern writers, to a degree which has promoted misinterpretation;
6. there are many aspects of the structure of the present chapel which invite explanation, such as the presence of three piscinae, the confused structure of the north wall with its variable masonry and miscellaneous carved fragments built into the wall above the arch.

The opportunity to resolve many of these questions has arisen as a result of parallel, but inter-related, research by the authors into the antiquarian descriptive material, the stylistic provenance of the surviving monuments and the archaeology of the standing fabric.

Description, Style and Identification

There survive three sculptured effigies in the Saltmarshe Chapel in Howden Minster. Two, those of an armed man and a lady, rest on a low plinth below an arched recess in the north wall. The third, that of another armed man, lies in the centre, on a tomb chest which bears a series of twelve weeper figures carved in relief on two panels. The two male effigies carry shields with heraldry carved in relief, which, despite the absence of tinctures, identify them as belonging to the

Metham and Saltmarshe families respectively. The monuments under discussion are thus composed of five elements; the three effigies, the chest panels and the arched recess. Each of these elements will be considered separately.

The Metham effigies

The male effigy in the recess is that of a knight, demonstrably produced by the Yorkshire Series B workshop[3] (Plate 2). In common with the female figure, the

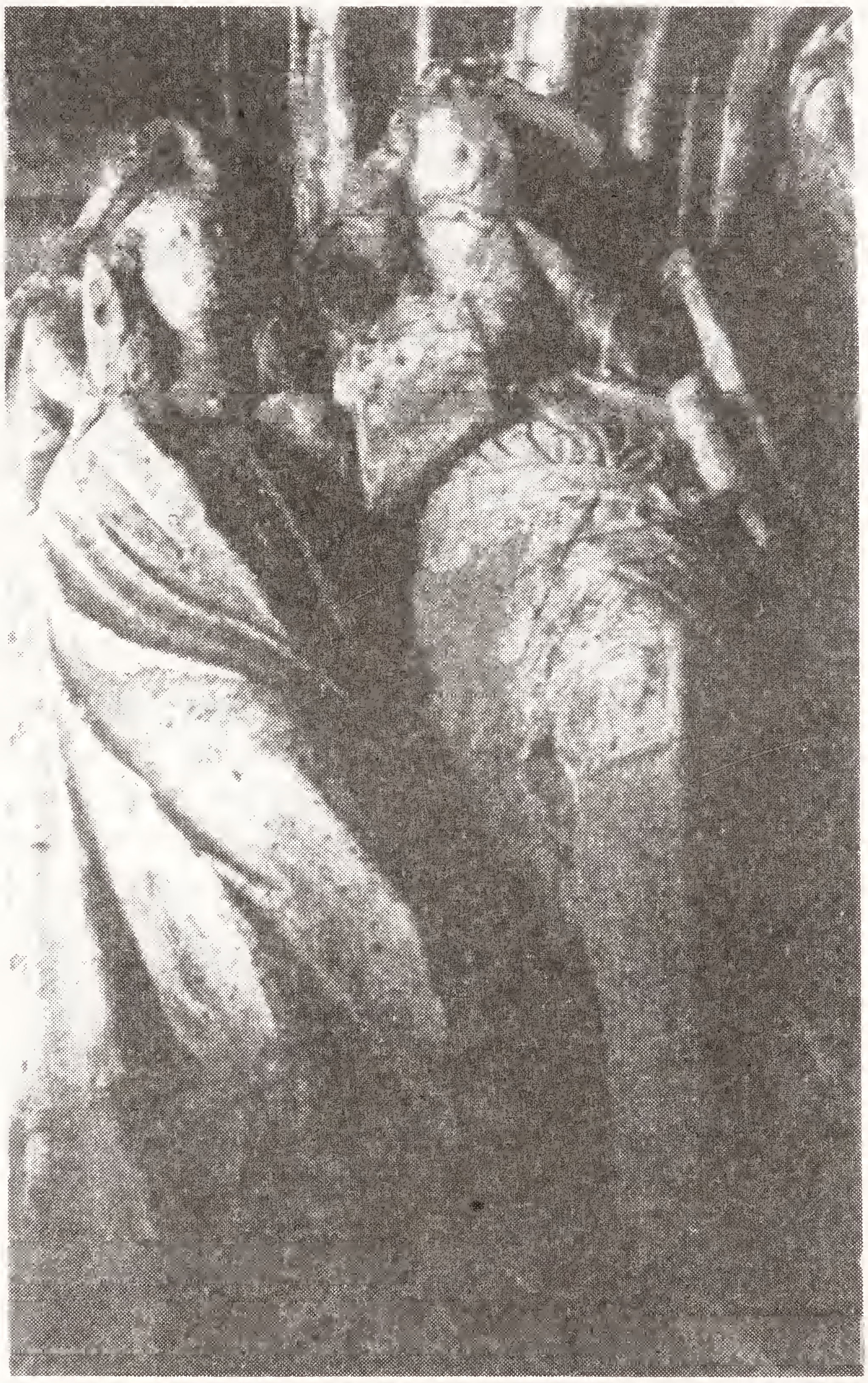

Plate 2. The de Metham effigies. Photo. B. & M. Gittos.

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[3] B. and M. Gittos, 'A Classification of Early Yorkshire Effigies', *International Society for the Study of Church Monuments Bulletin*, 3 (1980), 55 and B. and M. Gittos, 'The Other Half of Our Noblest Art -Yorkshire Effigies to 1360', lecture given to the Church Monuments Society, September 1988. The discussion of style inevitably involves the mention of several other Yorkshire effigies, together with the revised dates assigned to them in research by two of the authors. Limitations of space prevent the inclusion here of all the evidence for such dates and identifications. This was set out in the above lecture. For a description and analysis of Series A and B effigies see: B. & M. Gittos, 'Yorkshire Effigies c. 1300 and their Place in English Sculpture', in the pre-printed papers for the 1992 Conference on Medieval Europe (York, 1992), vol. 7, 'Art and Symbolism', paper G 8d. For a detailed treatment of the Goldsborough figure, and a discussion of the Series, see: B. & M. Gittos, "The Goldsborough Effigies", *Church Monuments*, vol. IX (1994), 3-32.

knight has a gablette carved above his head. It is cut from a substantial block of magnesian limestone, which has been somewhat eroded by exposure to the weather. This has emphasised veins in the stone, but good detail remains, the carving having simply lost its crispness. More serious is the damage to the figure's right side, where the right edge of the slab, the adjacent portion of the figure and part of the cushion have been cut away. More than half of his gablette has been lost. The head of the effigy is uncovered, the mail of the coif hanging in folds on the shoulders, leaving the face, head and front of the neck bare (Plate 3). The hair is curled in the particular manner used by this workshop on other effigies of the group, e.g. East Harlsey and Temple Church, London.[4] The hair of the figures at Bedale[5] and Norton (Durham), although following the same general pattern, is more complicated in detail. At Howden, it arches away from the face below the parting, curls back in to touch the side of the forehead, then puffs right out again at the level of the ears, before ending in a fat roll at jaw level. Although a manifestation of contemporary fashion in men's hairdressing, the precise details of the layout are a characteristic feature of this workshop. By way of contrast, it may be compared with the hair of such broadly contemporary effigies as those at South Petherton, Somerset[6] or Botley, Hampshire. The shape of the eyes, which is also a characteristic feature of this group, is not well seen here, due to weathering. The truncated cone neck is shared by the other bare-headed knights of the group and some of the female figures.

The gown is shown as a garment cut very large, which produces a multitude of folds when belted in to the figure, and reaches almost to the ankles. It has long, wide sleeves, in common with others at e.g. Bedale, Amotherby,[7] and Goldsborough. Not all the military effigies of Series B have long-sleeved gowns, but their depiction on such figures in England appears to be restricted to this group.

The body, the belts and weight of the buckles produce a complicated pattern of folds and counter-folds in the area between the waist and sword-belts. Above the waist-belt, itself concealed by the folds across the midriff, the gown is loose. Below the sword-belt the folds fall directly to the slab, in a shallow curve. The gown is split at the centre-front of the skirt to just above the knee, so that the poleyns are shown, although the upper edge of the topmost is concealed by the hauberk. The poleyns are of the standard Series B type, which has a central reinforcing rib continuous with the reinforced lower edge. The upper edge is always covered. There are rivet heads carved along the lower edge, emphasising the impression that what is being shown is probably a leather poleyn, with metal strips applied as reinforcement. On either side of the central rib is carved a small plain shield; the arms must simply have been painted on them. Similar knee-pieces may be seen at Hazlewood.[8] The head of the split in the gown is turned over on itself as it is, for

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[4] Illustrated in A. Gardner, *A Handbook of English Mediaeval Sculpture* (London 1935), fig. 302 on p.244.

[5] Illustrated in T. and G. Hollis, *The Monumental Effiies of Great Britain*, pt. 4 (London1841),unpaginated.

[6] Illustrated in G.W. Saunders, 'The Effigy of Sir Philip de Albini', *Somerset and Dorset Notes and Queries*, vol. XIX, pt. CLXI (June 1929), facing p. 217.

[7] Illustrated in W. M. I'Anson, 'Some Yorkshire Effigies', *Y.A.J.*, vol. XXVII, pt. 106 (1923), facing P.138. There appears to be no published photograph of this effigy. Although the drawing is reasonably reliable, the depiction of the mail leaves something to be desired.

[8] Figure illustrated in W.M. I'Anson, 'The Mediaeval Military Effigies of Yorkshire', *Y.A.J.*, vol. XXIX, pt. 3 (1927), fig. 80, facing p. 32.

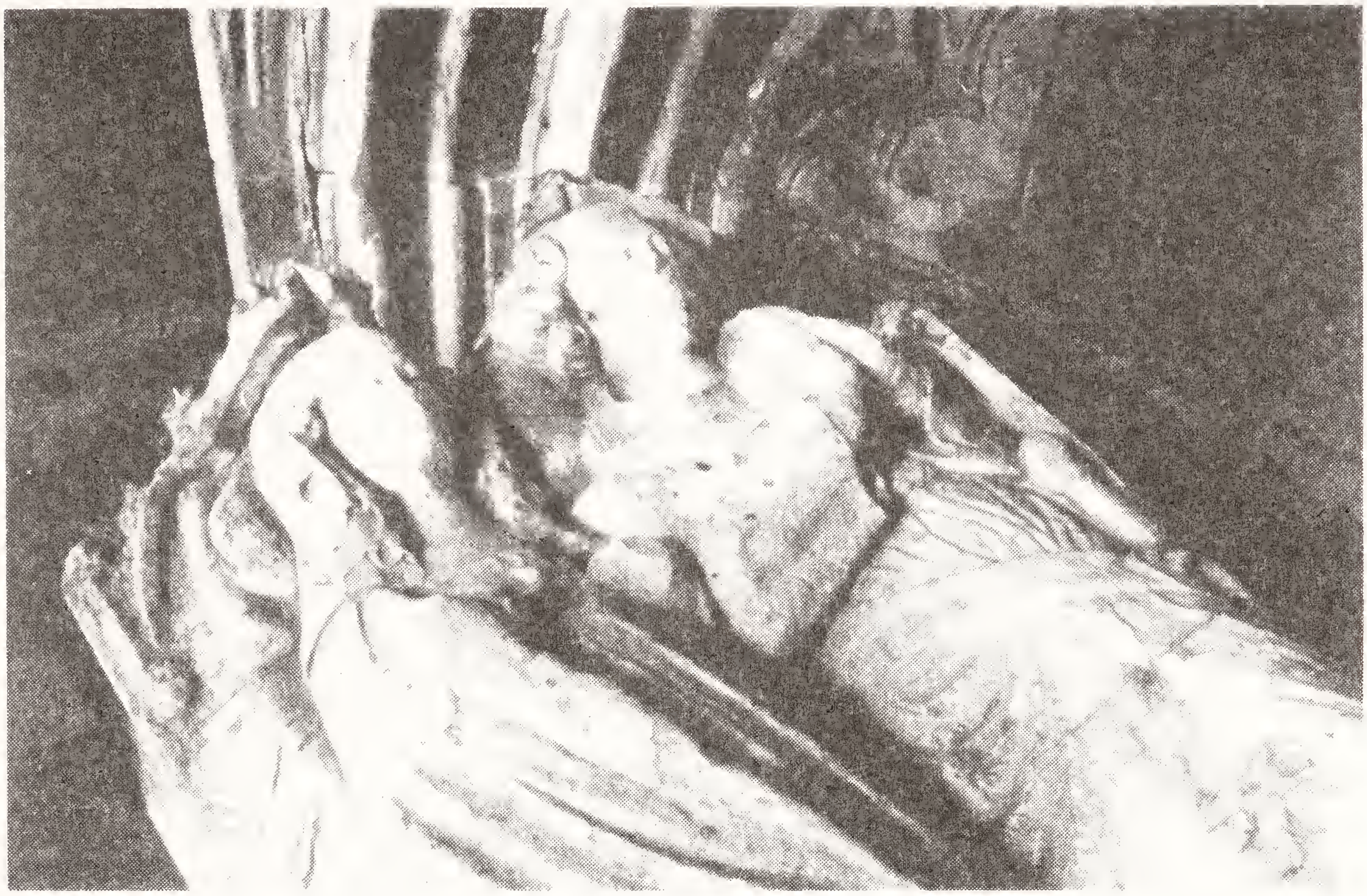

Plate 3. Detail of the de Metham effigies. Photo. B. & M. Gittos.

example, at East Harlsey,[9] Hazlewood and Butterwick.[10]

The figure's shield has the arms carved in relief; quarterly, in the first quarter a fleur-de-lys. The shield is carried on both a guige and two brases over the left arm. One of the distinguishing features of this group of effigies is the emphasis on straps and the breadth of the belts. Here, as is predictable, both the guige and sword-belt are very wide, well over two inches. The waist-belt, as on all Series B figures, has a very long hanging end, which passes under the sword-belt and falls amongst the folds of the gown on the right side. Straps rather than thongs are used to hold the mail in place at the wrists. The scabbard is attached to the sword-belt by lockets and chapes with integral rings[11] and the hanging end of the sword-belt curls over the edge of the shield. The effigy is shown wearing prick spurs, although one is broken away. The large mailed hands are composed in prayer and the right leg is crossed over the left. The toes point inwards towards each other, over the back of a lion.

Lying alongside this effigy is the figure of a lady. She has suffered damage comparable with that of the male figure, having been trimmed all along the left side and her gablette damaged. She has been carved from a similar block of magnesian limestone and has suffered weathering comparable with the male figure. Like that effigy, she is a product of the Series B workshop. As far fewer female effigies remain from this group possible comparisons are more restricted, although some are telling. On her head she wears a shoulder-length veil which is

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9. Illustrated in R. Knowles, 'A Civilian Effigy in Birkin Church, North Yorkshire', *Y.A.J.*, vol. LVII (1985), pl. 4, 90.

10. Illustrated in I'Anson 1927, op. cit. in n. 8, fig. 61, facing p. 8.

11. The method of attaching the scabbard to the sword-belt by means of rings mounted on lockets has hitherto been accepted as having been introduced in the 1320s, on the basis of its appearance on the royal effigy of Aymer de Valance in Westminster Abbey (*ob.* 1324). However, the feature is

held out from the temples, either by the hair or by cauls, and is drawn down over the forehead. A double curl of hair is shown just above eye-level, which lies partly over the upper edge of the veil. This also appears at Beverley Friary and on Appleton-le-Street I. No fillet is shown and indeed no female effigy from the group has one. The facial features are very eroded but the general shape and layout are discernible. The face is fairly long and thin, with a great emphasis on the forehead. This general form runs throughout the whole series but in ladies it is most easily seen at Beverley Friary and on the kneeling figure at Wistow. The effigy at Howden is alone amongst Series B female effigies in having no wimple. Its lack reveals the truncated cone-shaped neck also seen on the bare-headed knights. She wears a plain, unbelted surcoat and over it a generous cloak. The edges of the cloak are joined at shoulder level by a flat ribbon or cord, the downward loop of which is replicated on Appleton-le-Street I and the effigy at Beverley Friary. The cloak at Howden swirls across the front of the body in a great sweep, as at Beverley Friary and Wistow. The Series A lady at Bedale also wears a cloak which is draped in a swathe akin to that of the Series B cloaks. The Howden lady's right leg is clearly crossed over the left, an unusual feature which seems to be prefigured on the Bedale lady, where the legs are not crossed but flexed with one knee drawn up.

The two Series B effigies at Howden share a number of characteristics which emphasise that they may be considered as a pair. They are products of the same maker, are the same length and similar depths, and have, or had before mutilation, gablettes of identical form. These fit very closely over the heads and cushions and are of a very exaggerated nodding-ogee shape. The earliest example of sculptural use of an ogee in Yorkshire of which the authors are aware, occurs as a minor feature of the gablette of a knight at Fountains Abbey, dating from c.1300. This figure belongs to a group of three effigies which provide the link between Series A and B.[12] Despite their mutilated condition, it is apparent that the gablettes were constructed with a heavy central rib at the top, on either side of which were originally two plain shields, hanging by straps from pegs. The gablette of the male figure has been so damaged as to remove completely one shield and the central rib, and to clip the side of the second shield. The damage in this area takes the form of a large concave indentation hollowed out of the corner of the block. Both shields survive in the case of the female figure. The upper edge of each gablette is ornamented with stylised running foliage which forms occasional crockets but neither apex survives. At the sides they have tall pinnacles, springing from weathered corbels, which lie flat on the slab. These gablettes most closely

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shown on all the Series B military effigies, which include a number of attributable figures which can be closely dated, e.g. the effigy at Bedale can only represent Brian FitzAlan who died, without a male heir, in 1306. This series can be demonstrated to have been carved between *c.* 1300 and *c.* 1317, well before the previously accepted date for the introduction of the ring attachment method and during a period when no royal tomb with an armed effigy was produced. Whilst a single monument may be argued to have been set up some time after the date of death,the post-dating of an entire series is untenable. Perhaps the time has come for a re-assessment of the dating of this feature. The use of the ring attachment on Series B led W.M. I'Anson to post-date the entire group (termed by him the work of the Cheyne Atelier) by some twenty years.

[12] Gittos 1992, op. cit. in n. 3.

resemble that at Beverley Friary and lack the ball-flower ornament seen at Bedale, over Sir Brian FitzAlan.

The effigies' heads each rest on two cushions, the lower being large and square, the upper being a somewhat amorphous, elongated, diamond shape. Both upper and lower cushions have pinched corners. These cushions first appear on the A/B effigy at Escrick and run throughout this series. The slabs of both the effigies at Howden, except underneath the cushions, have been carved as though they are draped with a cloth. This is seen as a series of small pleats and gathers along the chamfered edges. No other example of this is known from the Series, although something similar appears on the royal effigies at Fontevrault, where it is usually taken to represent the draping of the death bed.[13]

Stylistic sequence of the Metham effigies

Of the few female figures belonging to Series B, none is securely dated. However, it seems clear that the Howden effigy is most closely related to that at Beverley Friary. The gablette type is well developed and might be expected to stand later, rather than earlier in the sequence. The position of the male effigy is rather more clear. His bare head is seen at Temple Church (c. 1300-03[14]), Norton (c. 1303[15]) and Bedale (c. 1306[16]) at the beginning of the B Series and again at East Harlsey (date uncertain, but perhaps c. 1310[17]). The long sleeves go right through the series as far as Amotherby (perhaps c. 1315[18]). The poleyn design is identical to that at Hazlewood (c. 1315[19]) but the early motifs of seated attendant figures and the effigy's foot being supported by the lion's tail are absent. Two important features are the folded-over head of the gown split and the end of the sword-belt lapped over the edge of the shield. The latter motif first appears at East Harlsey (c. 1312) and is repeated at Amotherby (c. 1315) and on the two figures at Hazlewood (c. 1315). The relevant area of the shield has not been carved on the unfinished figure at Butterwick (c. 1317[20]). However, that effigy does show the folded-over head of the gown-opening, as do the Hazlewood effigies. It seems clear, therefore, that the male figure at Howden fits rather more closely to the end than to the beginning of the relative chronology. With Series B running from c. 1300 to c. 1317, it would be reasonable to expect a date in the range c. 1310-15, and the features of the female figure and their two gablettes confirm this.

Identification of the Metham effigies

The arms on the knight's shield are: *quarterly, in the first quarter a fleur-de-lys.*

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[13] J.W. Hurtig, *The Armoured Gisant Before 1400* (New York 1979), 16.

[14] Gittos 1992, op. cit. in n. 3.

[15] Ibid.

[16] Ibid. Brian FitzAlan died in 1306, between 1st June, when he is stated still to have been alive (*Calendar of Close Rolls*, Edward I, p. 422), and 8th June, when custody of his lands was granted to the Earl of Lincoln (*Calendar of Patent Rolls*, Edward I 1301-07, 441).

[17] Gittos 1992, op. cit. in n. 3.

[18] Ibid.

[19] Ibid. A.D.H. Leadman, 'Hazlewood Chapel', *Y.A.J.*, vol. XIII (1895) quotes Torre's description of the two effigies on a single tomb. Rev. C. Moor, *The Knights of Edward I*, Harleian Society (1932) records the deaths of Sir William and Sir Walter Vavasour within two years of each other.

[20] Gittos 1992, op. cit. in n. 3. Sir Robert died in 1317 and was buried at Butterwick. See R. Davies, 'Grimthorpe, a Monograph', *Y.A.J.*, vol. II (1873), 195.

No trace remains of the tinctures but the arms of the Methams, the most important family in the area at this date, were: *quarterly, azure and argent, in the first quarter a fleur-de-lys, or.*[21] Since the arms on the shield are apparently undifferenced the figures probably represent a head of the Metham family and his wife.

There were two deaths of Metham heads of family within ten years at the beginning of the fourteenth century, the next being in 1355. The latest definite reference to Sir Thomas de Metham I known to the authors is in 1305.[22] Thomas had married Alicia[23] and was the father of Sir John de Metham. It is to this Sir Thomas that William Hutchinson attributed the foundation of the Metham chantry in the thirteenth century. Saltmarshe suggests that Alicia died some time after 1294 and that this event prompted Sir Thomas to found the chantry,[24] although other evidence may suggest a date as early as the 1270s.[25] At the time of Sir Thomas's death his eldest son, Sir John, was already married to Sybil de Hamelton.[26] He died at a relatively young age in 1311-12, when his heir Thomas was only twelve years of age.[27] It was this Thomas who was the next head of family to die, in 1355.[28]

There are thus two possibilities for the Series B effigies, Sir Thomas I or Sir John. In order to appreciate the constraints upon the commissioning of the monument, it is first necessary to understand the events in which the family was involved at this time. It might be argued that Sir Thomas could have set up the monument when he established the chantry but this would be too early, although a posthumous monument erected by his son, widow or executors must be a possibility. However, Sir John's date of death falls within the predicted range for the carving of the figure discussed above. A commission prior to his death would provide an explanation for the lady's not appearing as a widow, but a date of carving much earlier than Sir John's death would bring the figures too early in the stylistic sequence.

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[21] C.R. Humphery-Smith, *Anglo-Norman Armory Two* (1984), 434 and J. Foster, *Some Feudal Coats of Arms* (1902), 140.

[22] Col. P. Saltmarshe, 'Some Howdenshire villages', *E.R.A.S.T.*, vol. XV (1908), 84 gives Thomas's date of death as 1303. However, he was still active in early 1305, as on 25 April he was given a Commission of Oyer and Terminer (*Calendar of Patent Rolls*, Edward I 1301-07, 356). This seems to be his last appearance. An ambiguous reference in W. Brown and A. Hamilton Thompson, *The Register of William Greenfield*, pt. III, Surtees Society, CLI (1936), 119, n. 1, raises the possibility that he may still have been alive on 23 October 1306.

[23] Alicia is traditionally believed to have been the daughter and co-heir of Jordan de Pollington (Bodleian Library, Oxford, MS. Top. Yorks. c14, fo. 253-253v. Notes taken *c.* 1690 by Henry Johnston from a pedigree in the possession of George Metham of Metham, Esq.).

[24] Saltmarshe 1908, op. cit. in n. 22, 84.

[25] The date of the founding of this chantry is not known, but Sir Thomas de Metham seems last to have been mentioned in April 1305 (see n. 22) and so it was probably sometime prior to 1305. W. Hutchinson, *The History and Antiquities of the County Palatin of Durham* (London 1794), vol. III, 558 states 'St. Andrew's: this auncient chauntry was founded by Thomas, son of Jordan de Metham, who granted to the said altar, in the church of St. Peter at Hovedon, 5^{m} annual rent, issuing out of three oxgangs of land, one lying in Askelby, another in Hoveden, and the third in Laxton: which he purchased of Sir Thomas de Hooke, Knt. for the maintenance of one chaplain, who should daily celebrate divine service at the altar of St. Andrew's for the souls of the said Thomas and Alice his wife, his parents and all his ancestors'. Further light is shed by a transcription of the Metham Cartulary in James Torre, 'Northern Gentry, British Library, MS. Egerton 2574, fo. 65, which reads 'This Thomas son of Jorden de Metham granted to the altar of St. Andrew in the Church of Howden 8^{li} per annu for the sustintation of a Chantry priest to celebrate for his soul and the soul of Alice his wife etc MR 113'. The entry is undated but appears in the chronological sequence before 1272 entries.

[26] Col. P. Saltmarshe, 'Some Howdenshire Villages', *E.R.A.S.T.*, vol. XVI (1909), 1.

[27] Ibid., 2 states that he died in 1311. However, the writ for his inquisition post mortem is dated 18 May, 5 Edward II, i.e. 1312 (*Calendar of Inquisitions Post Mortem*, V, p.180). The date of death of 1320 given in I'Anson 1927, op. cit. in n. 8, 18 is spurious.

[28] *Calendar of Inquisitions Post Mortem*, X, p.210.

By 1300 Sir John and Sybil had already been granted the manors of Hirst Courtney, Bassetlaw, Vernoil Hall in Balne and a variety of properties by their fathers. Further properties followed before Sir John came into his Metham inheritance.[29] Sybil was the daughter and sole heir of Adam de Hamelton and brought both the Hamelton properties and her mother's Markenfield inheritance into the Metham family.[30] During the next few years Sir John was regularly charged with public duties; in 1309 he was one of the Commissioners to arrest deserters in the East Riding,[31] was made Commissioner for Drainage in 1311[32] and in the same year was to enquire into the taking of salmon in the close-season.[33] In 1308[34] and again in 1311[35] he was Collector of Subsidies for Yorkshire. He died in 1311-12 leaving three sons, all under age.

Sybil was not only a considerable heiress, but following John's death became involved in many troubles. John de Metham seems to have died between the granting of the drainage commission on 18 August 1311[36] and 17 May 1312, when the order was given to the Escheator to take his lands into the king's hands.[37] It is likely that his death occurred shortly before this, in early May. John's Inquisitions Post Mortem were held in June and at that for the East Riding lands, held at York on 19 June, it was stated that the heir, Thomas, was not to be found.[38] An inquisition held on 15 August reported:

'In the life of the heir's father, Sir Jordan de Metham took the heir to the manor of Belasise, and after the said John's death by the command of Lady Sibyl late his wife, Thomas Verjon and John de Waghen eloigned him beyond the Humber, and after three weeks the said John de Waghen brought him back to the said Thomas, who delivered him to Sir William le Conestable who still detains him.[39]

By this time Sybil had already remarried, without licence,[40] as on 7 June a commission was ordered to investigate the complaints by Robert de Styveton "that Hugh 'Scot du Maris', Nicholas de Portington, ... with others raped Sibyl his wife at Metham, co York, carried her off with goods of his and still detain her."[41] Robert de Styveton was a North Riding knight, with lands in the Skipton area, centred on

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29. Saltmarshe 1909, op. cit. in n. 26.
30. Ibid.
31. *Calendar of Patent Rolls*, Edward II 1307-13, 12 December 1309.
32. Ibid., 18 August 1311.
33. Ibid., 1 February 1311.
34. *Parliamentary Writs*, vol.II div. I (1830), 12.
35. Saltmarshe 1909, op. cit. in n. 26,34.
36. See n. 32. This appears to be the last mention of him.
37 *Calendar of Fine Rolls*, 1307-19, 132.
38. *Calendar of Inquisitions Post Mortem*, Edward II, p.181.
39. Ibid.
40. *Calendar of Close Rolls*, Edward II, 1307-13, 466.
41. *Calendar of Patent Rolls*, Edward II 1307-13,476.

his manor of Kildwick. On 18 June Sybil was granted protection by the king[42] and he also granted her, of his 'especial grace', the Metham lands which were also then in the king's hands, for as long as they should so remain.[43] Is it perhaps significant that this extraordinary document is dated from Burstwick and that the king had just spent at least three days at Howden? Just over a month later, on 23 July, the king released to Styveton and Sybil a group of properties which had been jointly held by Sybil and John de Metham,[44] and it might be expected that this was the end of the affair, but within a week Sybil was imprisoned at York 'for certain trespasses against the king'[45] and mainperned into the custody of the king's clerk, John de Merkyngfield, who was probably a relative. Also worthy of note in this year was a raid on the manor of Metham by a group of men which included Hugh Scot; a commission was set up to investigate this on 6 September.[46]

The following year Sybil, Hugh Scot and three other men were arrested with the accusation 'that they had taken by night and carried away 500 marks, which John de Metham, deceased, one of the collectors of the fifteenth in that county had collected ... which money was in his custody at his death'. The order for their release from prison was made on 26 July as all but £10 15s 3d had been found to have been handed over to the treasury. They were, however, held responsible for that sum.[47]

On 21 April 1314, John de Merkyngfield, now described as 'canon of the church of St. Peter, York', was pardoned for the rape of Sybil, late the wife of John de Metham and similar pardons were given to 'John [son of Geoffrey] de Merkyngfield, William de Styueton, John called "le Hunte", Robert de Styueton and Thomas le Harpur'.[48] A series of orders to county sheriffs, dated 14 August 1314, reveals that Robert de Styveton had been indicted of the murder of Hugh Scot.[49] A further document adds that this was committed in the presence of the king at York,[50] and others state that Styveton had fled the country.[51] A full two years later, on 25 August 1316, the king ordered the return of some of Styveton and Sybil's lands to Sybil 'to have and to hold for the maintenance of herself and her children for so long as the remainder of the said lands shall remain in the king's hands, as the king wishes to show her special grace'.[52] The king was at York at the time. Styveton clearly returned shortly afterwards, as on 25 November the Justices of Gaol Delivery for York were ordered to release him.[53] On 24 January 1317 the legal process against him was abandoned and he was formally acquitted of Scot's death.[54]

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[42] Ibid.,464.

[43] *Calendar of Close Rolls,* Edward II, 1307-13, 427.

[44] Ibid., 446.

[45] Ibid., 542.

[46] *Calendar of Patent Rolls,* Edward II, 1307-13, 533-35, 601.

[47] *Calendar of Close Rolls,* Edward II, 1313-18.

[48] *Calendar of Patent Rolls,* Edward II, 1313-17, 105.

[49] *Calendar of Close Rolls,* Edward II, 1313-18, 111.

[50] *Calendar of Inquisitions Miscellaneous,* vol. II, 1307-49, 64.

[51] For example, *Calendar of Patent Rolls,* Edward II, 1313-17, 310.

[52] *Calendar of Close Rolls,* 1313-18, 362.

[53] *Calendar of Patent Rolls,* 1313-17, 599.

[54] *Calendar of Close Rolls,* 1313-18, 390.

Once again, this was not the end of the family's troubles, as on 22 July a commission was set up 'on complaint by Robert de Styveton that Gerard Salveyn, Thomas de Metham the elder, Nicholas de Metham, Thomas de Metham the younger, Jordan de Metham, Nicholas de Portyngton and Thomas Veriowe with others, abducted Sibyl his wife from Skipton-in-Craven, co. York, and carried away his goods'.[55] The problems reached their conclusion some time before 1327, as on 10 March Sybil's sons Thomas and John, together with one of Thomas's servants were pardoned for the death of Styveton.[56] It has been suggested that Sybil later married Sir Nicholas de Portyngton[57] and it is possible that she was still alive in 1341.[58] The fast moving sequence of events which followed Sir John's death shows that Lady Sybil and the de Metham family were greatly pre-occupied and unlikely to have engaged in such a sober activity as the commissioning of an elaborate funerary monument. It seems more probable, therefore, that the tomb was ordered by Sir John himself, shortly before his death.

The Saltmarshe effigy

The general features of the second military figure, the Saltmarshe effigy, are consistent with a date in the first half of the fourteenth century (Plate 4). Both his shield and gown carry heraldry carved in relief which, although damaged in places, depicts three six-petalled flowers between seven crosses with decorated terminals. These arms can be identified as those of the Saltmarshe family (*argent, crusily three sexfoils gules*). The history of the Saltmarshe family in this period has been dealt with by Col. P. Saltmarshe.[59] During this period two heads of the Saltmarshe house (then called Salso Marisco) are known to have died, Sir Eluard (or Elnard) c. 1322 and Sir Peter in 1337-38.[60] It is, however, not known where either was buried. Most writers have followed I'Anson[61] in attributing the figure to Sir Peter, but there are good grounds for believing that the figure is, in fact, attributable to Sir Eluard.

It has not proved possible to link this figure with any of the Yorkshire series which have been identified, thus stylistic analysis in this case is very restricted.[62] There are, however, some points of detail which bear comparison with one other effigy in the county, that at Kirkby Fleetham in the North Riding. This too is a highly individual sculpture which cannot be linked with any of the series, but it is marked by its very professional workmanship. When comparing these two monuments, it is important to appreciate the discrepancy between their conditions. While Saltmarshe has been heavily eroded by weathering, Kirkby Fleetham remains as crisp as when newly carved. The other principal difference in character is rooted in the depth of the stone block. The confines of the block impose practical limitations to a sculptor's ability to carve in the round - he cannot

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[55] *Calendar of Patent Rolls*, 1313-17.
[56] *Calendar of Patent Rolls*, Edward III, 1327-30, 47.
[57] Saltmarshe 1909, op. cit. in n. 26.
[58] *Calendar of Patent Rolls*, Edward III, 1340-43, 197.
[59] Col. P. Saltmarshe, *The History of the Township and Family of Saltmarshe* (privately printed 1910).
[60] Ibid., 90. Evidence is presented that Sir Eluard died between 1320 and 1322.
[61] I'Anson 1927, op. cit. in n. 8, 53.
[62] B. & M. Gittos, "A Survey of East Riding Sepulchral Monuments Before 1500", in C. Wilson,ed., *Medieval Art and Architecture in the East Riding of Yorkshire*, B.A.A. Conference Transactions vol. IX (1983, pub. 1989), 96.

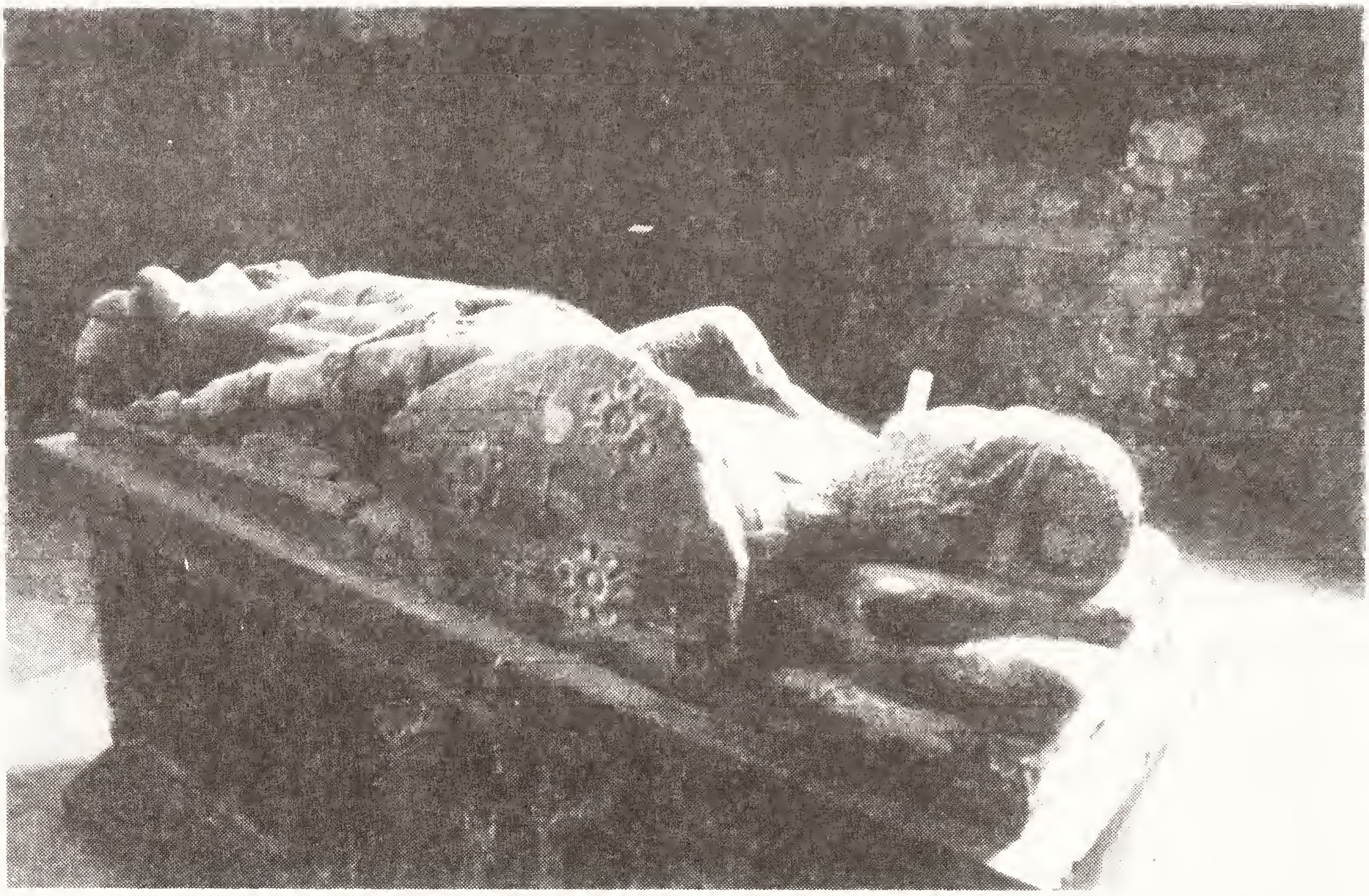

Plate 4. The Saltmarshe effigy. Photo. B. & M. Gittos.

display as much virtuosity with a small block as a large one. More money would buy a larger block of stone, but such a block might not always have been available. The influence of differing depths of block may be appreciated by comparison of the relatively shallow Escrick and Temple effigies with the other members of the A/B and B series, and, in Series E, the low relief ladies at Kirkleatham and Danby Wiske with, for example, Appleton-le-Street II. It is with these points in mind that any comparison of Kirkby Fleetham with the less adventurous Saltmarshe effigy must be conducted. For example, the sculptor of Kirkby Fleetham was able to undercut the spurs completely, whereas at Howden they were carved as an integral part of the block. This has led to their total loss at Kirkby Fleetham and their survival at Howden, where they as clearly shown as the simple prick form.

The first point of similarity is in the shape of the individual mail links. These are very rounded - taking the form of an almost complete circle. Link shapes are far from being conclusive evidence, but individual workshops do seem to have adopted a 'house style' and this can prove a useful diagnostic tool. The area of the head provides a number of similarities. The crossed cushions, in both cases have dimpled corners - an uncommon feature. It is unfortunate that Saltmarshe's features are so badly damaged, as this has robbed us of a potentially fruitful area for comparison. Both effigies have a mail coif, which falls to a similar level on the shoulders. Each has a fillet of the same width, which is placed half a row of mail links above the face opening, over the forehead. At Howden the fillet is ornamented by quatrefoils. The face opening itself is particularly wide on these figures, in contrast with, for example, the almost triangular shaped openings used by Series B. The Saltmarshe and Kirkby Fleetham openings are unusually broad, exposing the cheekbones at their widest point. Both effigies have arming points on either side of the head. The arming points consist of a similar knot with a loop above it, the trailing ends being of the same length. The alignment of the swords is similar, with the hilts lying not under the shield, but resting against its edge. The shape of the sword-belt chapes is noticeably blunt in each case.

Both figures wear a particularly short gown, which is an unusual feature amongst Yorkshire effigies of this date. The folds of the gown do not fall naturally to lie on the slab, but are presented as though the figure is standing, rather than recumbent. The result, seen from the feet, is a stack of stiff, convoluted folds akin to a sixteenth century starched ruff. Additionally, both effigies have the edges of the gown opening shown cut away at a sloping angle. The final area for comparison is the lion at the feet of each figure. They face away from the effigy and have long, sinuous front legs, ending in prominent claws. The ears are tiny, set close to the eye and hidden amongst the mane. The manes themselves are prominent and luxurious. Each face is framed by tight, swept-back curls, but the backs of the heads are disappointingly plain, all the emphasis being on the mane as seen when looking at the lion's face.

To set against these similarities are the many points of difference, such as the radically different sword-belt attachments, the remarkable stance of the Kirkby Fleetham lion and the naturalistic folds which yield to the weight of the sword-belt buckle on the Kirkby Fleetham figure. I'Anson considered that the effigy at Kirkby Fleetham was a mainstream York product.[63] As already explained, this cannot be substantiated and it is not, therefore, possible to date either effigy by the use of relative chronology within a series, although, if the two are related, it would seem reasonable for their dates to be close. The identification of the Kirkby Fleetham effigy has always been problematical. The shield bears *a lion rampant with a label of five points*. Kirkby Fleetham was held by the Stapleton family who bore *argent, a lion rampant sable*, with or without a forked tail, but here the arms are differenced. I'Anson identified the figure as Nicholas de Stapleton,[64] but Moor states that he was a cleric.[65] However, Sir Miles himself seems to have had at least four sons, one of whom (Sir Gilbert) married the elder daughter and co-heiress of Sir Brian FitzAlan.[66] The arrangement of such a wealthy match supports the view that he was the second son. McCall states that he was Steward of the King's household in 1307,[67] and, for a time at least, he was a retainer of Aymer de Valance, Earl of Pembroke.[68] Although he held lands in Berkshire from Pembroke, his central interests were in the north, where his wife's lands lay and in 1321 he was granted licence to enfeoff his brother John of the manor of Walkyngham, Yorkshire.[69] Sir Gilbert died in June 1321.[70] There is at present no known connection between Sir Gilbert and Kirkby Fleetham, but the occurence of such an accomplished monument to a younger son of the Stapleton family at this date, geographically adjacent to the lands of his wife, suggests that it may have been set up for Sir Gilbert.

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[63] I'Anson 1927, op. cit. in n. 8, 16.

[64] Ibid., 17.

[65] Moor, op. cit. in n. 19, under Sir Miles de Stapleton, ob. 1314.

[66] V. Gibbs & H. Doubleday,eds,*The Complete Peerage*, vol.V (1926), 396.

[67] H.B. McCall, *The Early History of Bedale* (1907), 46.

[68] J.R.S. Phillips, *Aymer de Valence Earl of Pembroke 1307-1324* (1972), 302.

[69] Moor, op. cit. in n. 19, under Sir John de Stapleton.

[70] McCall, op. cit. in n. 67,47.

If the effigy at Kirkby Fleetham may be dated c.1321, then the Saltmarshe figure should be similarly dated. The traditional identification has been that of Sir Peter Saltmarshe, *ob.* 1337-38. However, Sir Peter's father, Sir Eluard died *c.* 1322. It is therefore suggested that the effigy commemorates Sir Eluard and was probably carved *c.* 1322. The presence of the prick spurs on the Saltmarshe effigy would have been normal in the early 1320s. However, the depiction of prick spurs appears to have become unfashionable in Yorkshire during the 1330s.[71] At the time of the death of Sir Peter, three workshops were operating in Yorkshire: Series C, which supplied the Ryther figures *c.* 1335; D, which supplied the figures at Ilkley and Stillingfleet, both *c.* 1336; and E, which produced the effigies at Ingleby Arncliffe in the 1340s.[72] If the monument were being ordered at the time of Sir Peter's death, it is most probable that one of these established workshops would have been patronised. However, at the earlier date, the picture was somewhat different. Series B had finished abruptly with the Butterwick figure (*c.* 1317) and Series C would not come into production until the Scargill figures at Darrington (*c.* 1326). 1322, therefore falls in a period of hiatus, when no first rate workshop seems to have been producing monuments in the area. Indeed, when the Marmions of West Tanfield needed a monument on the death of Sir John in 1322, they turned to Lincolnshire and bought an effigy from the same source as the knight at Rippingale.[73] Again at Whorlton in the North Riding of Yorkshire, Nicholas, 2nd Lord Meynill (*ob.* 1322) was commemorated by a wooden effigy of London work.[74] The appearance, therefore, of an individual figure, not belonging to an identified Yorkshire series, around 1322, is unsurprising. [75]

The Tomb Panels

The tomb panels now beneath the Saltmarshe effigy, facing north and south, each comprise six niches containing individual figures (Plate 5). Each side panel is carved from a single block of magnesian limestone. The figures on the north side are better preserved than those on the south, which have suffered weathering, such that the figures are badly eroded. Five of the six niches on the north side have trefoil heads with slight ogival perturbation at the apex. The sixth niche on this side (the most westerly) has only a round trefoil head, with no ogee. All the niches on the south side have the ogee apex but again the most westerly differs from the rest, this time because the trefoil head is created by cusping. Taking the north side first, all six figures are male and wear unbelted ankle-length gowns. They are described from east to west.

1. The figure wears a hood on his head, which is inclined, looking down to his left. The hands and forearms are broken off.
2. Ecclesiastic. He has a cowl which lies on his shoulders, curled hair and a tonsure and looks to the right. In his left hand he holds a bird (damaged) and points to it with his right. His shoes are clearly shown.

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[71] For a recent discussion of the change from prick to rowel spurs see C. Blair, 'Rowel Spurs and the Dating of the Cantwell Effigy at Kilfane, *Church Monuments Society Newsletter,* vol 7 no.1(Summer 1991), 4-6.

[72] Gittos 1988, op. cit. in n. 3.

[73] Tummers, *Early Secular Effigies in England - The Thirteenth Century* (Leiden, 1980), 99.

[74] I'Anson 1927, op. cit. in n. 8, 19.

[75] It may be that comparison with sculpture outside the area would provide stylistic context.

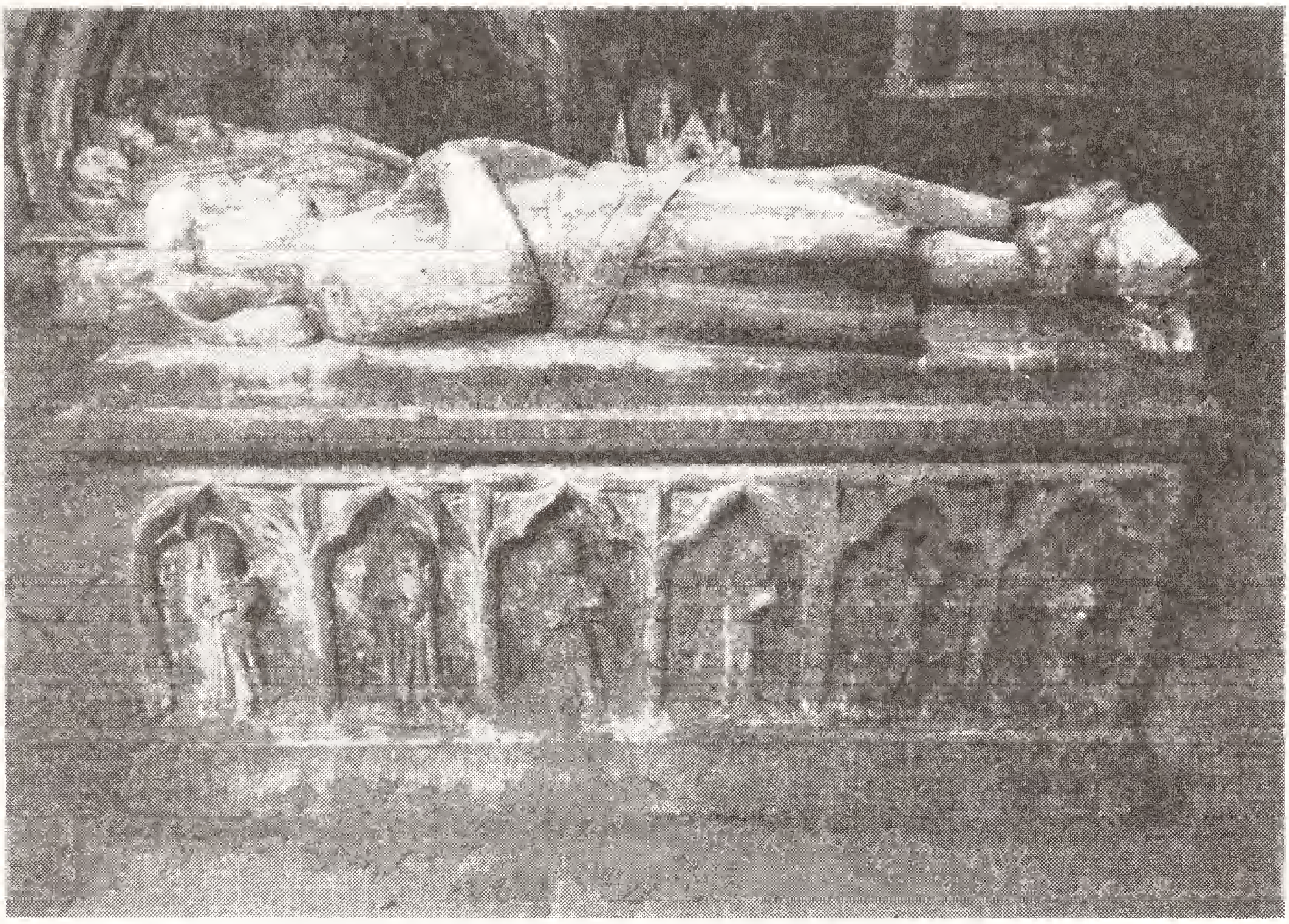

Plate 5. The tomb chest panel, with weepers in niches, beneath the Saltmarshe effigy (south side).
Photo. S.F. Badham.

3. The figure wears a separate hood drawn up over his head. He looks to his left and his mouth is slightly open. In his left hand he holds a glove by his side. His gloved right hand is upraised, with the forefinger extended, as if pointing to the figure on his right.
4. The weeper's gown has a V-shaped fold or opening below the left elbow and a separate hood is worn, drawn up over his head, although some hair is shown across the forehead. In his right hand he holds an open book to which he is pointing with his left. He is turned slightly to the right.
5. The figure wears a coif and there is a fringe of hair across the forehead, a wave at the temples and a rolled up curl at the nape of the neck. The neck itself is bare. His hands are gloved, with the right held at his side and the left is upraised, palm forwards, in greeting. He looks to his left.
6. The weeper wears no hood and his hair is shown in the conventional male fashion of the time. In his right hand he holds a glove, at his side. His gloved left hand supports a large bird, probably a hawk, at which he is looking. The head of the hawk is contiguous with the frame of the niche. (Plate 6).

On the south side of the tomb the figures are of both sexes and all wear loose floor-length garments. They are described from the west.

7. Male. The gown has long loose sleeves, the separate hood is drawn up over the head and a short liripipe hangs behind. He appears to have been holding a book in his left hand and to be pointing to it with his right. He is turned to his left (Plate 7).
8. Female. The figure wears a veil but no wimple and her surcoat spills over the base of the niche. She is reading from a book which she holds in both hands and is shown almost in profile, facing to her right.
9. Male. A hood is worn over the head. He holds a book in his left hand and keeps his place with his right. The figure is looking out of the niche, towards his left.

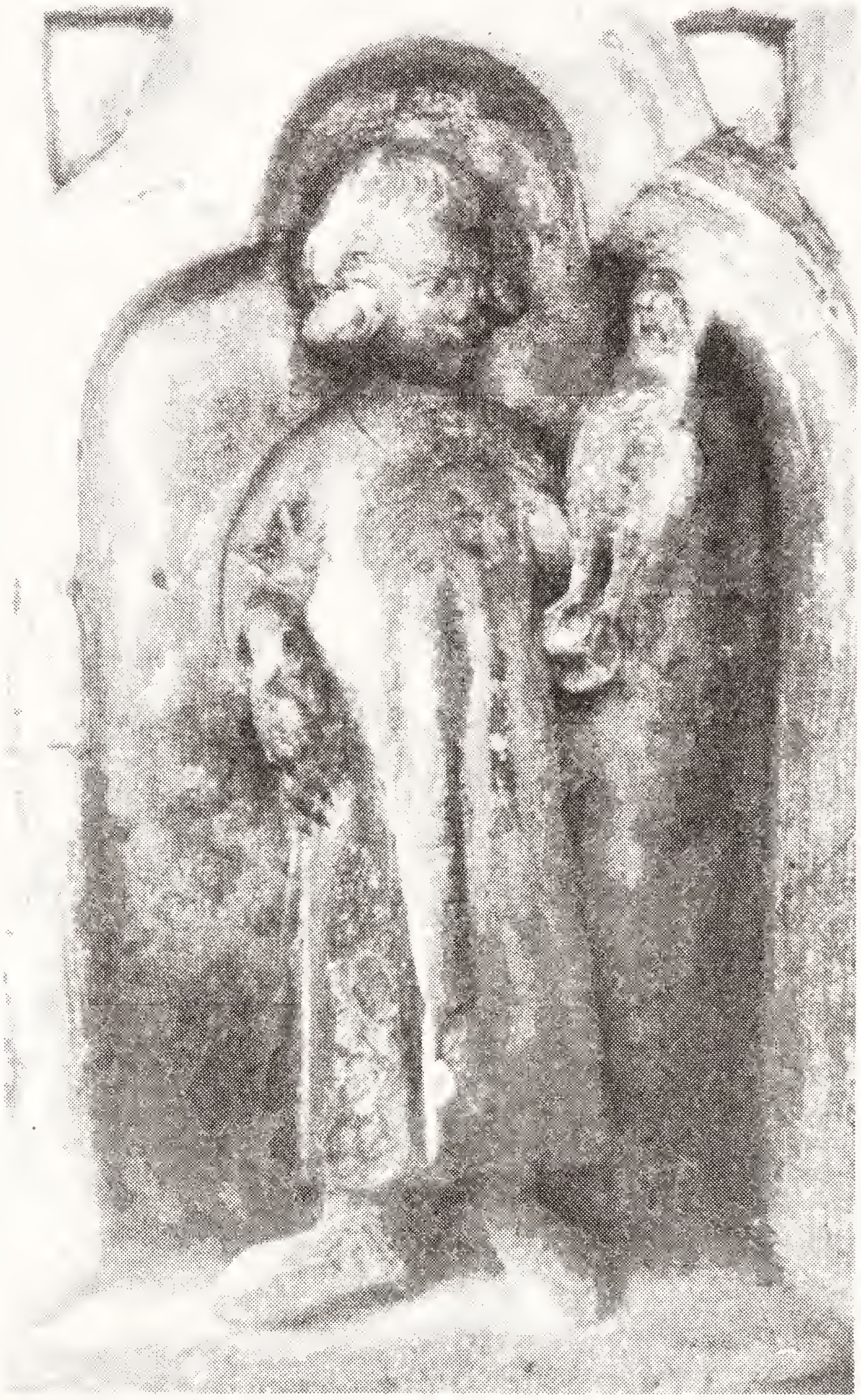

Plate 6. Weeper with a hawk - northern tomb chest panel, most westerly niche. Photo. B. & M. Gittos.

10. Female. The figure wears a veil but without a wimple. She holds an open book in her left hand, while her right is upraised and her head is tilted upwards, as though in speech. She is turned slightly to her right.
11. Male. A separate hood is worn on the head. He is holding an unrolled scroll and is turned to his left.
12. Female. The figure wears a veil with a fillet and appears to be reading from a book. She is turned to her right so far as almost to be in profile. Her long surcoat is draped across the base of the niche.

The overriding impression conveyed by these weepers is that of life and individuality. They are involved in activities ranging from hawking to reading books and do not stand rigidly facing out of their niches, but are turned at varying angles, with their hands in many different positions. Furthermore, the figures appear to be grouped in pairs with each couple inclined towards one another. The only exception to this coherence of design is No. 6, who turns away from his neighbour.

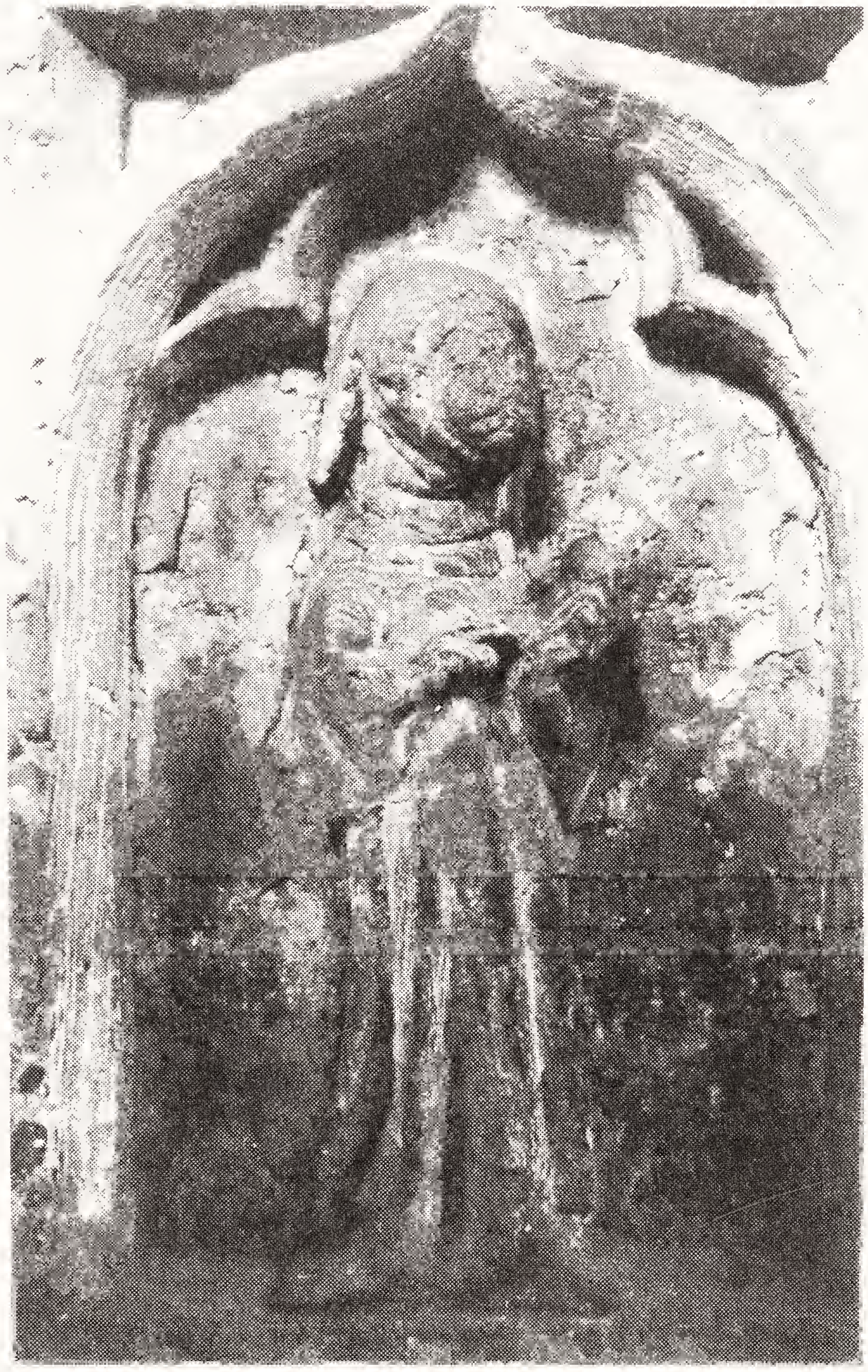

Plate 7. Weeper with book - southern tomb chest panel, most westerly niche. Photo. B. & M. Gittos.

It has been suggested that these figures represent minstrels and carry musical instruments[76] but examination of the panels reveals the details described above. Whilst the number of the figures might suggest that they should represent apostles, the fact that three women are included and that all the lay figures display current fashion eliminates this possibility. The proportion of three female to nine male figures suggests that they are intended to represent real people, most probably actual members of the deceased's family. For instance, the most fashionably habited figure (No.6), who holds a hawk and whose position breaks the coherence of the design, may represent the eldest son. His individual stance perhaps emphasises his primogeniture.[77]

Stylistic Analysis of the Tomb Panels

It is suggested that these two panels of weepers were not made to form part of the

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[76] F.H. Crossley, *English Church Monuments A.D. 1150-1550* (London, 1921), 128 and T.S.R. Boase, *Death in the Middle Ages* (1965), 87.

[77] If, as is suggested below, the panels belong to the Metham tomb, not the Saltmarshe tomb, the tonsured figure might represent Jordan de Metham, brother of Sir John, who was in orders.

Saltmarshe monument, but originally supported the two Metham effigies. The evidence for this is two-fold. Antiquarian drawings, described below, show them to have formed part of the Metham monument. Stylistic analysis demonstrates that they are Yorkshire Series B products, whereas, as already explained, the Saltmarshe effigy cannot be linked with an identified Yorkshire series.

The figures carved on these panels are small, only a few inches high, and it is therefore difficult to compare them with full size effigies in order to assess their position in the stylistic sequence of Yorkshire effigial sculpture. Difficulty is also created by the paucity of comparative material. The panels at Howden constitute the most substantial remaining portion of a Yorkshire Series B carved tomb chest. Series B tomb chests which might be compared to that at Howden are at best only fragmentary or damaged, such as that at Bedale. The complete monument at Goldsborough had no tomb chest, while the surviving panel at Hazlewood is non-figural, bearing heraldry. Moreover, the Howden weepers are all standing, which mitigates against comparison of the drapery pattern with recumbent effigies and the male weepers are shown in civilian costume, unlike the male Yorkshire Series B effigies which are all military.[78]

Despite these difficulties there are a number of features which are suitable for comparison with the full size effigies. The natural attitude of the figures follows the contemporary custom seen, for example, on the late thirteenth and early fourteenth century tombs at Westminster. Four of the weepers have bare necks, which are shown as the truncated cone shape already described on the Metham effigies. The best preserved figures are on the northern panel and those with the clearest faces are Nos. 2 and 6. The faces of these two figures are well modelled and very similar in form to those of the Metham effigies. The loose hair of No. 6 follows the same pattern of waves as that already described on John de Metham's effigy, which it closely resembles. The variation in shapes of the niches is surprising and might be accounted for by a development in the sculptor's ideas during the work. However, this is not a satisfactory explanation because by the time the monument at Howden was produced, the workshop had been using the ogee for some years and indeed a very developed form of nodding ogee occurs on the gablettes of the effigies. In conclusion, the visual evidence afforded by the tomb panels not only demonstrates that they were produced by the Series B workshop, but also that they are closely related to the Metham effigies which they once supported.

The Arched Recess

The recess in the north wall of the chapel has a pointed segmental arch which is deeply moulded in a repeated pattern. It is crocketted, with a panel at the apex, decorated with a trefoil and surmounted by a heavy finial. There are side-shafts rising almost to the height of the central finial and two niches above the arch which have nodding ogee canopies and elaborately decorated bowls. Between the niches and the apex of the arch are two shields carved in relief, that to the west with the arms of Metham, the other showing *an eagle displayed, debruised by a bend*. The latter has been claimed to represent the arms of Hamelton.[79] It has been suggested that the shields and niches have been brought from elsewhere and inserted into the arch.[80] However, an examination of the manner in which the arch is constructed makes clear that this is not the case; for instance, two of the blocks on which the crocketing of the arch is carved also carry part of the carving of the niches. Moreover the drawing by Johnston (Plate 8) shows that by 1690 the arch was arranged exactly as it is at present. However, it does appear that the arch has

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[78] Knowles, op. cit. in n. 9, argues the case for the Birkin effigy to be regarded as the product of Series B (termed by Knowles the work of the Sleeve Master). However, this has since been refuted in Gittos 1988, op. cit. in n. 3.

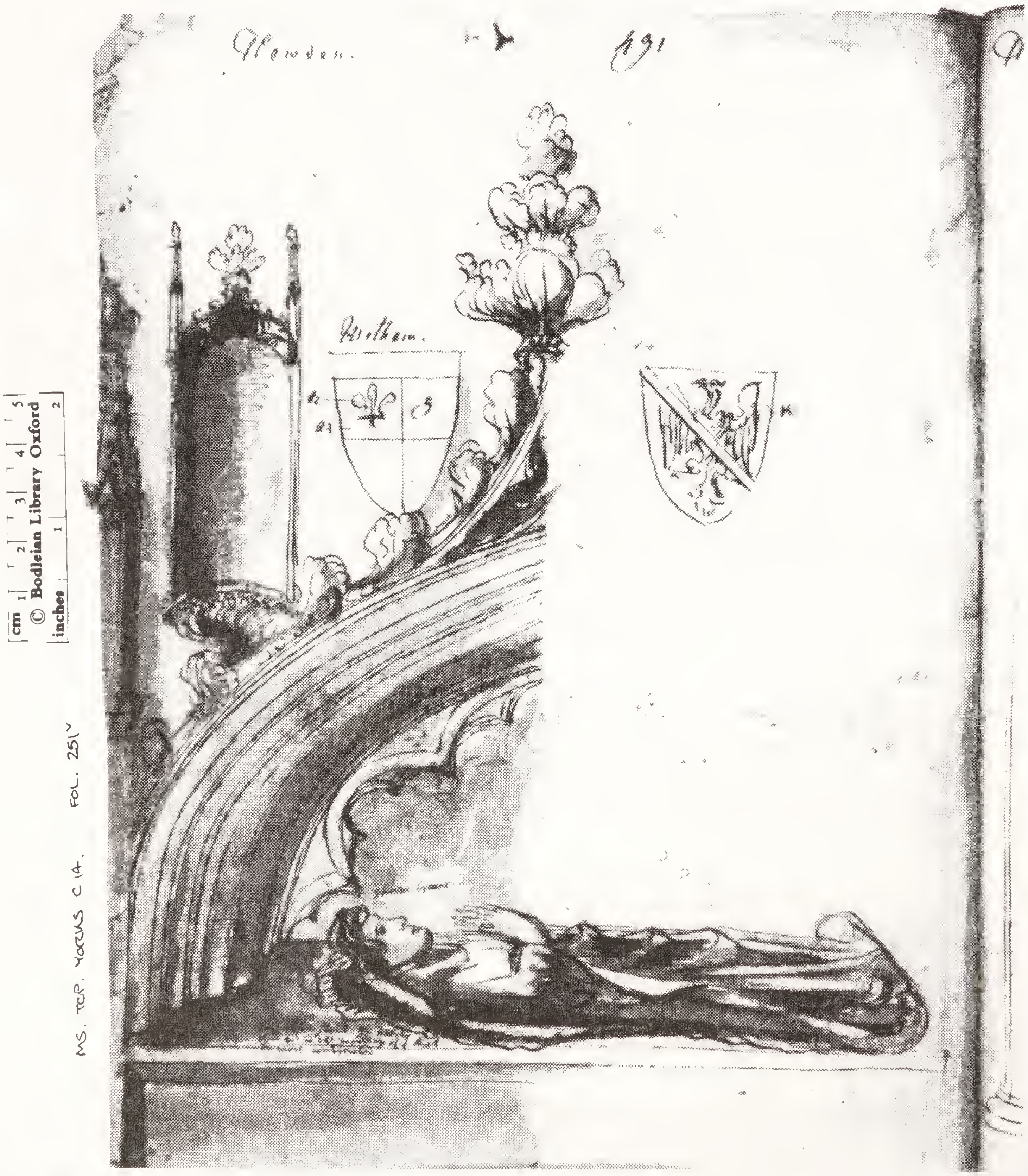

Plate 8. Drawing of the tomb of John de Metham, Rector of Patrington, formerly in Howden Minster. From Henry Johnston's notes of *c.* 1690. Bodleian Library, Oxford, MS. Top. Yorks. c14, fo. 251v.

(Reproduced by permission of the Curators of the Bodleian Library.)

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[79] For example, I'Anson 1927, op. cit. in n. 8, 18. However, I'Anson's source for this identification is unknown.

[80] Keeton, op. cit. in n. 1, 13.

either been dismantled and badly re-assembled or been poorly repaired, so that the joints are no longer as tight as they should be. The bases of the niches interrupt the crocketing of the arch in a clumsy manner, but this seems to be an unsatisfactory facet of the original design.

On the back wall of the arch there is a cusped and sub-cusped pattern of blind hanging-tracery, with a plain central rectangular block of stone, which was probably originally decorated with a painting, contributing to the design of the monument. The arrangement of the cusping of the tracery is strongly reminiscent of that in the stalls of the Chapter House.[81] In the north transept aisle there is a matching tomb-recess, which shows similar general features, but the shields and the niches are absent and, because the arch is now open, there is no blind tracery, giving it an unfinished appearance (Plate 9). As discussed in detail below, the style of the recess would suit a date in the middle of the fourteenth century, rather than the beginning of the century, as might be inferred from the heraldry.

Documentary Evidence

The position of these Metham and Saltmarshe tombs within the chapel has varied considerably over the years, as is demonstrated by an examination of documentary sources. The first full and illustrated account of the effigies is contained in Dugdale's 'Yorkshire Arms' of 1641.[82] The relevant folios of the Howden entry are shown in Plates 10 and 11; they read:

fo. 128

'In muro Australi cujusda Capellæ[83]
ex Australi parte dictæ Eccliæ
[drawing of the tomb recess with the arms of Metham and Hamelton with the effigy of a priest and the following inscription on the long side of the slab supporting the effigy]
... iohis de Methm qu°da rectoris ecclesiæ de Patrington qui
obijt xviij° ... Aug ...'

fo. 128v

'In eadem
Capellâ
Hujus militis (ie ... Metham) conjux, Cru-
cesignata fuisse videtur:
jacet enim Cruribus-
in formam crucis extensis.
[drawing of the Metham knight and lady on a tomb chest with 6 niches down the long side, though the weepers housed in them are not shown]
Adhuc in
eadem Capellâ'
[drawing of the Saltmarshe knight on a low slab].

This thus describes three tombs: the Saltmarshe knight and Metham pair discussed in the preceeding section, and a third tomb, with the effigy of a priest, now lost. That two of the three tombs had been in the position described by Dugdale since at least the late sixteenth century is confirmed by earlier

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[81] F. Bond, *Gothic Architecture in England* (1906), 137.

[82] College of Arms, London, shelfmark MS. RR14/c, fo. 128-9. This manuscript is a fair copy written in 1667 of church notes dated 1641.

[83] Dugdale is in error here; the tomb recess is in the north wall of this southern chapel, not in the southern wall. Curiously, R. Gough, *Sepulchral Monuments* (London, 1786), vol.1, 175 made the same mistake.

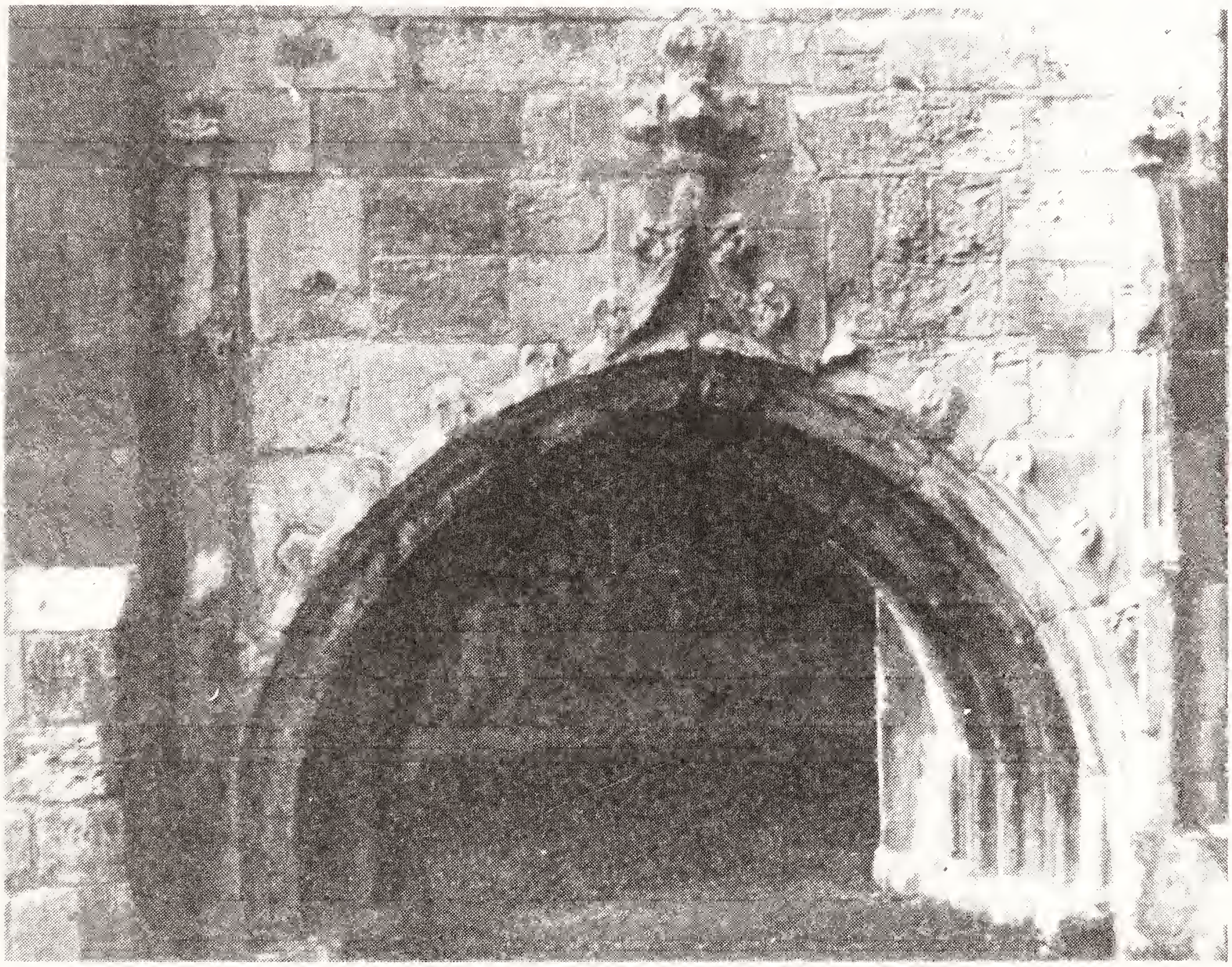

Plate 9. Tomb recess in the ruined north transept chapel, south wall. Photo. B. & M. Gittos.

antiquarian notes. The earliest known church notes on Howden are brief. Leland, writing in 1535-43 merely says: 'There is also a tumbe, in a chapel in the sout part of the cross isle of the chirche, of one of the Metehams.'[84] Although only one of the Methams is mentioned, this does not necessarily mean that it refers to the priestly figure of John de Metham. The shield of arms on the Metham knight is so large and would have been so eye-catching with its tinctures in place that it is hard to conceive of Leland missing it.

More evidence on the position of the tombs can be gleaned from a group of manuscripts all derived, at least in part, from Glover's notes of 1584, which refer to only two of the tombs:

> 'Johis de Metham quonda rectoris ecclice de patrington qui obiit 18 Aug
> [drawing of the arms, above the arch, of Metham and those which have been attributed to Hamelton]
> A knight lying very ould in the church croslegged with this Armes on his shield,
> [drawing of the arms of Saltmarshe]. [85]

None of the many copies of Glover's notes, even those which contain additional material, rectify the omission of the Metham knight and lady.[86] Unfortunately

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[84] L. Toulmin Smith, ed *Leland's Itinerary in England and Wales* (London, 1910), vol. 1, 52.

[85] College of Arms, London, REC/RR 1584, fo. 255.

[86] British Library, MS. Add. 18011, fo. 260 (compiled by Richard St. George, Norroy King of Arms, with occasional later additions by Silvanus Morgan and Thomas Lloyd, according to *Catalogue of Additional Manuscripts in the British Museum 1848-1853,* (1868), 70. and St. George made a visitation of Yorkshire in 1612):

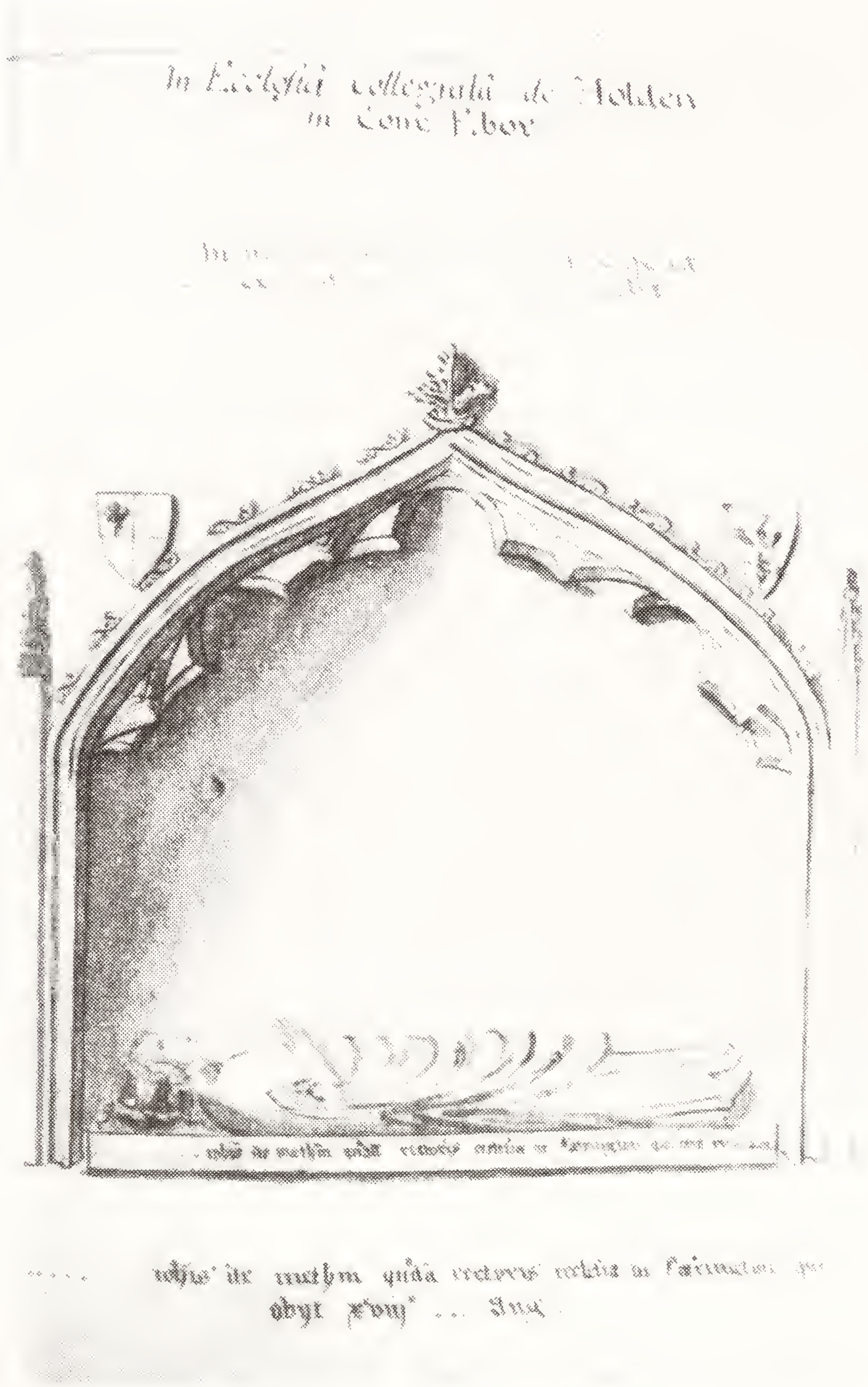
In Ecclia collegiali de Holden
in Com: Ebor
Johis de methm quõda rectoris ecclie de Patrington qui
obyt xviij ... Aug

Plate 10. Drawing of the tomb of John de Metham, Rector of Patrington, formerly in Howden Minster. From Sir William Dugdale's 'Yorkshire Arms', College of Arms, London, MS. RR14/c fo. 128.

(Reproduced by permission of the Chapter of the College of Arms.)

'Johis de Metham quonda rectoris eccliae de Patrington qui obiit 18
[drawing of arms of Metham and Hamelton]
A Knight lyinge very old in the church crosleged with this Armes on his shilde
[drawing of arms of Saltmarshe]'.
British Library, MS. Harleian 1394, fo. 311 (copy made between 1585 and 1613 by Nicholas Charles according to C.E. Wright, *Fontes Harleiani*, (London, 1 9 72), 102) :
'Johis de Metham quondam rectoris ecclie de Patrington qui obiit 18 Ka-lend Augusti etc.
[drawing of arms of Metham and Hamelton]
A knight lying very ould in the church aforesaid cross legged with this sheild on his arme,
[drawing of arms of Saltmarshe].
(This manuscript and MS. Harleian 1084, quoted below, refer to John de Metham's date of death as 18 kal August. This is unlikely to be an accurate transcription of the original, since there is no such date, 15 July being the Ides of July and 16 July the XVII kal. August, leading up to 1 August, which is 1 kal. August. The authors know of no other dates in mediaeval monumental inscriptions expressed in terms of Nones, Ides or Kalends. Since other sources show a gap for an illegible part of the inscription

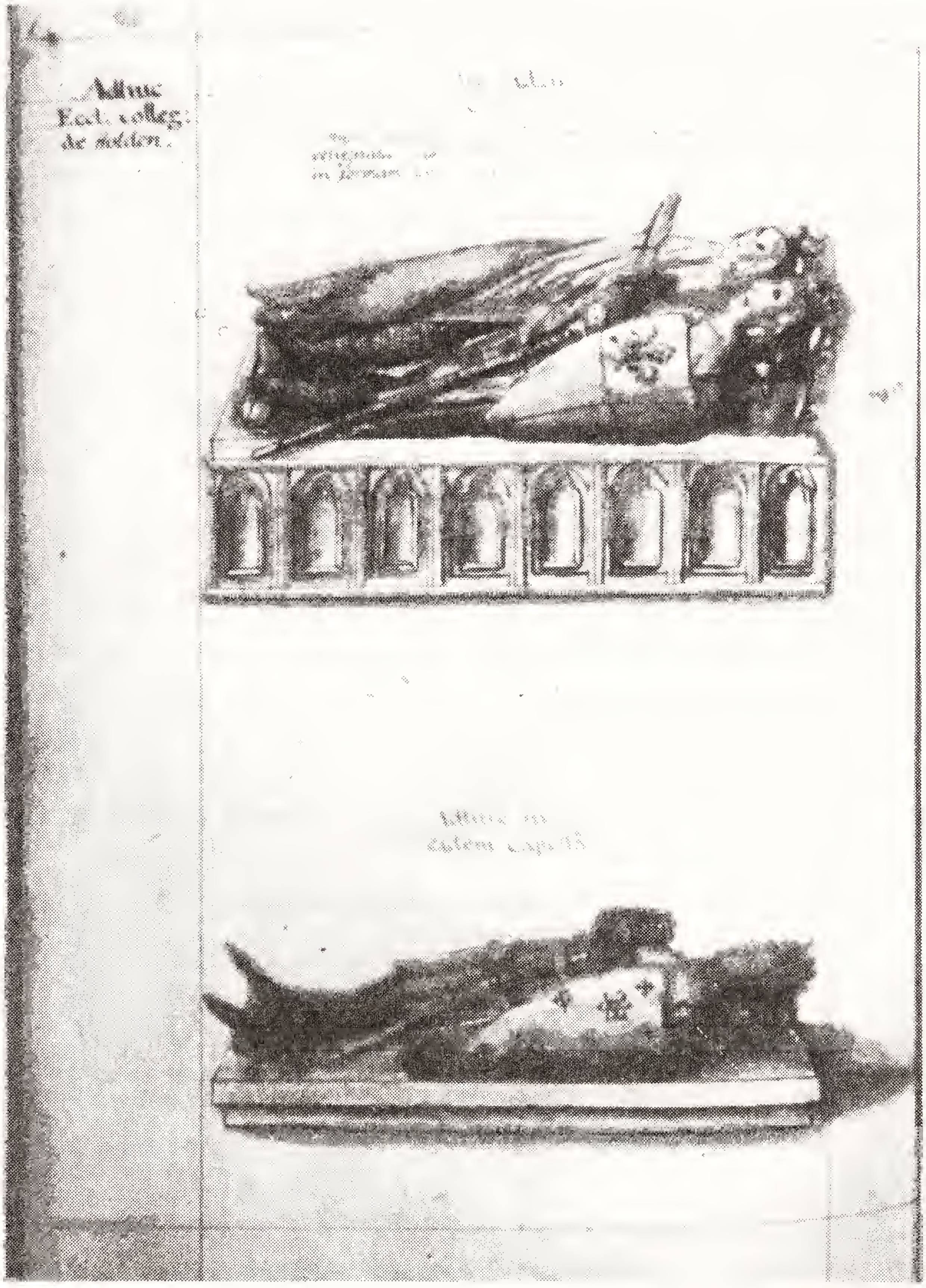

Plate 11. Drawing of the tombs of Sir John de Metham (*ob*.c. 311-112) and his wife Sybil and of Sir Eluard Saltmarshe (*ob. c.* 1322) in Howden Minster, as recorded in 1641. From Sir William Dugdale's '*Yorkshire Arms*', College of Arms, London, MS. RR14/c.
(Reproduced by permission of the Chapter of the College of Arms.)

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at this point, the more likely explanation is that the original read '18 die mensis August', a very common formulation.)

British Library, MS. Harleian 1420 fo. 238, (possibly compiled by John Saunders, *ob. c.* 1687 according to Wright, *op. cit.*, 297):
'Johis de Metham quonda rectoris ecclice de Patringto qui obiit 18 Aughgust.
[drawing of arms of Metham and Hamelton]
A K^{ti} ying very old in ye church cross leggin with his Armes in his shild
[drawing of arms of Saltmarshe]'.

Bodleian Library, Oxford, MS. Dodsworth 137, fo. 100v (authorship unknown, but not in Dodsworth's hand): 'Johis de Metham Quondam Rectoris Ecclesie de Patrington, qui obiit 18 Augustii
[drawing of arms of Metham and Hamelton]
A knight lying very old in the church aforesaid cross leged with this sheild on his arme
[drawing of arms of Saltmarshe].

Bodleian Library, MS. Harleian 1084, fo. 185 (authorship unknown but owned by John Saunders

James Torre uncharacteristically made no notes referring to the Metham/Saltmarshe chapel in his account of Howden.[87]

Henry Johnston's church notes and drawings of c1690 clearly shows the tomb chest to have been located in the south transept and divided in two (Plate 12). He comments:

> 'This Mon stands in the middle of the aforesaid Quire adjoyning to the piller, and the pertition of the Metham and Saltmarshes hath gone betwixt them, therefore it is a Question whether they have beene man and wife or no. They say that she was a Saltmarshe and mar: to a Metham.'[88]

Johnston's speculation that the lady was a Saltmarshe is unsupportable. Johnston's notes also include drawings of the Saltmarshe knight and the Metham priest, exactly as shown by Dugdale.[89]

At this point mention should be made of Keeton's suggestion that the Metham effigies were moved to the chapel from elsewhere in the church in the seventeenth century.[90] This was conjecture, based on knowledge of the drawings of the priest's effigy in the recess now occupied by Sir John and Sybil de Metham, but ignorance of the Dugdale and Johnston drawings showing the Metham tomb in its previous position in the south transept chapel.[91] Although Glover's failure to mention the tomb is curious, as discussed in detail below, consideration of the tomb in its context suggests it had been in the chapel since the fourteenth century.

To summarise, in c. 1690 there were in the south transept chapel three tombs with effigies to members of the Metham and Saltmarshe families. The earliest, a fine tomb chest adorned with weepers, with effigies for Sir John de Metham

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according to Wright, op. cit. 297):
'Johis de Metham quondam rectoris eclie de Patrington qui obiit 18 calend augusti
[drawing of arms of Metham and Hamelton]
A knight lying very old in the church aforesaid crosslegged that sheild on his Arme
[drawing of arms of Saltmarshe]
In a glass window
[drawing of arms of Saltmarshe].'
British Library, MS. Add. 17453, fo. l9v (compiled by Rev. D.T. Powell):
'A knight lying cross legg'd very old in the said Ch with this shield on his arm
[drawing of the arms of Saltmarshe]
In a glass window bye
[drawing of the arms of Saltmarshe].'
The Queen's College, Oxford, MS. 86, fo. 255 (authorship unknown):
'John de Metham quondam rectoris ecclesiae de Patrington qui obiit 18 Aug
[drawing of the arms of Metham and Hamelton]
A knight lying very ould in the Church croosse ... with his armes on his sheild
[drawing of the arms of Saltmarshe}
In a glass window
[drawing of the arms of Saltmarshe].'
We are grateful to John Blair for help with this reference.
J. Foster, *The Visitations of Yorkshire, made in the Years 1584/5 and 1612* (London, 1875) drew mainly on British Library, MS. Harleian 1394 for the church notes. For a more general discussion of this group of manuscripts see P.J. Lankester, 'Two lost Effigial Monuments in Yorkshire and the Evidence of Church Notes', Church Monuments, vol.VIII (1993), 25-44.

[87] James Torre, 'Churches Peculiars within the Diocess of York', York Minster Library, Ll(10).

[88] Bodleian Library, Oxford, MS. Top. Yorks. c14, fo. 252.

[89] *Ibid*, fos. 251 and 251v.

[90] Keeton, op. cit. in n. 1, 13.

[91] Ex. inf. Canon Keeton.

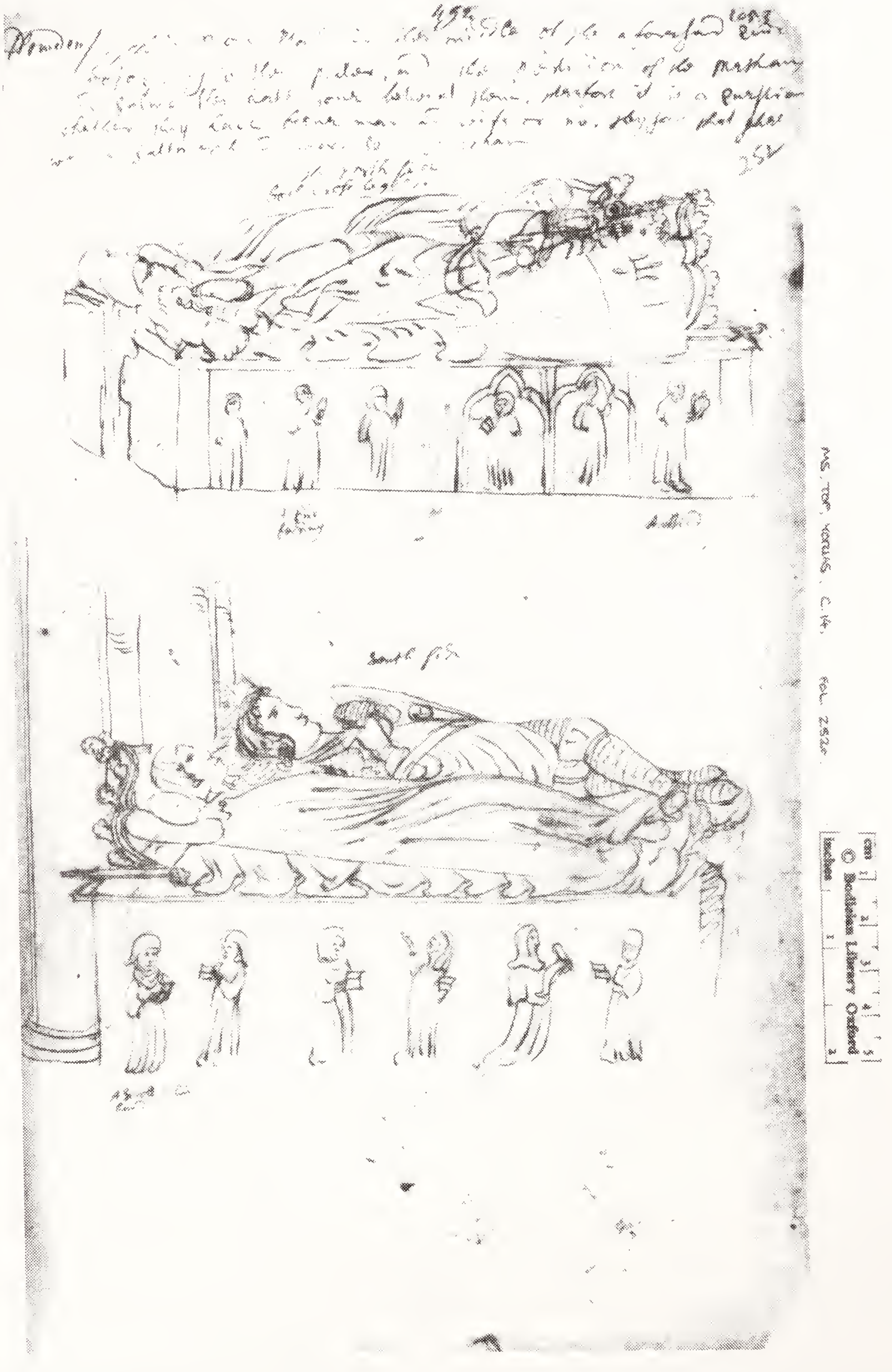

Plate 12. Drawing of the tomb of Sir John de Metham (*ob.* 1311-12) and his wife Sybil in Howden Minster. From Henry Johnston's notes of *c.* 1690. Bodleian Library, Oxford, MS. Top. Yorks. c14, fo. 252. (Reproduced by permission of the Curators of the Bodleian Library.)

and Lady Sybil lay with the head of the tomb chest against the eastern side of the pillar in the chapel. The second, the effigy to Sir Eluard de Saltmarshe, lay on a low slab in the south west corner of the chapel. The third was the effigy of a priest lying in the tomb recess in the north wall of the chapel, which the inscription on the tomb made clear commemorated John de Metham, Rector of Patrington. He held this office from at least 1361,[92] probably until the late 1380s.[93] He appears to have been Sir John and Lady Sybil's grandson, through a younger son John.[94] It is unlikely that all three tombs remained intact much after 1690. In 1696 the vaulting, clerestory and arcades of the choir collapsed,[95] probably also causing damage to the adjacent Metham/Saltmarshe chapel. The priestly effigy may well have been damaged or destroyed at this time. Thomas Gent, writing in 1733, says:

> 'Near the south door are the Remains of a Chantry where the Saltmarsh's and Metham's families do still bury their Dead. There, mix'd among the stupendous Ruins, are to be perceiv'd the effigies of two Knights Templar, no doubt of the said Families, with the Representation of a most beautiful Lady.'[96]

Similarly, no reference to the priest is made in Mr. Pennant's 'notes taken lately' quoted by Francis Grose in 1773:

> 'In a side chapel, called Metham's altar, is a tomb beneath an enriched Gothic arch. On the floor is a fine tomb of a knight cross-legged, a shield, a mantle, his neck and head bare, short hair; mourners and religious in niches round the tomb and one person with a falcon. A lady in a loose gown, cross-legged; another cross-legged knight, his head, cheeks and neck, guarded with chain-armour sticking quite close, a fillet round his head, his brest set with robes.'[97]

More positive evidence of the disappearance of the priest is provided by Richard Gough, who, in 1786, records only an empty tomb recess:

> 'In a chapel on the South side of the ruined choir of the beautiful collegiate church are these monuments. A cross legged knight habited like Ros in the Temple Church, in flowing hair, his head on a double cushion, his hands in mail banded at wrists, and a sleeve: a large sword at his left side, mail on his legs and feet, and single spurs, a lion at his feet. On his long painted shield, Quarterly mullet, in the first quarter a fleur de lis, Or. Metham. By his side a woman in flowing coif, her right leg seemed crost, but the figure is much damaged. [full description of the weepers on the tomb chest] In the South [sic] wall is a flowered arch with a bouquet, sided by Metham, and a spread eagle debruised by a bend.
>
> Under a south window is a knight on a single cushion in a round helmet of mail, with a plain fillet, a gorget of the same, also greaves and shoes, wrist bands, a lion at his feet, a long sword, and on his shield the arms of Saltmarsh, denoting him one of that family.'[98]

Full confirmation of the loss of the priestly effigy is provided by a drawing made by John Carter in *c.* 1790, whose drawing was almost certainly one of the sources

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92. Torre 'Northern Gentry', op. cit. in n. 25, fo. 72 '3rd August 1361 Whereas Thomas de Metham had granted to John de Metham parson of the Church of Patrington the certain annual rent of 50^{S} to be payd out of his manor of Cadby now the said John granted to the said William de Metham of Cadby and Margaret his wife and to John and Richard their sons and heirs of the body of William that the said Thomas son of Sir Thomas de Metham shall have 12 acres of land in Arksey and Bentley without the suit or impleading of this William and Margaret his wife MR 316'.
93. According to the unpublished *Fasti* in the Borthwick Institute of Historical Research complied by the late Rev. N.A.H. Lawrance (Add. MSS. 155, 102), the last known reference to Patrington as rector is dated 27 April 1381 (Archbishop Neville's register, Reg. 12, fo. 63). The succeeding entry is for Richard Young, with the date 1390.
94. Torre 'Northern Gentry', op. cit.in n. 25, fo. 72. This entry is listed separately from those relating to John de Metham, son of Thomas, suggesting that the Rector of Patrington was John's son John.
95. C. Jackson ed., *The Diary of Abraham de la Pryme, the Yorkshire Antiquary* Surtees Society vol. 54, (1870), 194.
96. T. Gent, *The Antient and Modern History of the Loyal Town of Ripon* (York, 1733), 57.
97. F. Grose, *The Antiquities of England and Wales* (London, 1773), vol. 4, unpaginated but 2nd page of Howden entry.
98. Gough, op. cit. in n. 83, vol.I, 175.

of Gough's description of the Howden monuments (Plate 13). Though erroneously entitled 'Mon^{ts} of the Saltmarshes in a ruined chapel on the south side of Howden church', it shows in the background of a view of the Metham tomb the tomb recess which held John de Metham's priestly effigy empty except for pieces of broken architectural mouldings.[99] He also made a drawing of the Saltmarshe knight, albeit attributed to the 'Methuen' family, still on its rough slab on the south side of the chapel.[100]

In 1794 William Hutchinson reported a tradition that 'The effigy spoken of by Johnston is gone, we were informed the boys of the school had broken it away, for the sake of the alabaster'. [101] However, he continues:

> 'but rather presume, that, to save it from being totally spoiled, the workmen clearing out the quire had removed it, and placed it on the tomb in the transept, where is a figure set up against the pillar, represented in a canonical habit, apparently not belonging to the tomb where it is placed.'

The mistaken belief that it survives and was set up against the pillar, repeated by others, including Keeton,[102] is conclusively refuted by a further examination of Carter's notes. He drew the figure in a canonical habit on the tomb in the south transept, where it is still, and noted: 'The remaining part of a large statue placed on a Tomb seen in this view, brought from the niches at east end of church.'[103] It is therefore likely that the story quoted by Hutchinson about the effigy's destruction is indeed correct.

The next notice of the effigies shows them differently arranged, in a manner not recorded elsewhere (Plate 14). Richardson's drawing published in 1843, but possibly prepared some years before publication, shows the Saltmarshe knight in the position recorded in the sources quoted above, but with the weepers from the south side of the Metham tomb forming part of the newly constructed tomb chest. The Metham knight and lady had been moved to the tomb recess under which they still lie, but the weepers from the north side of their original chest are shown forming the front wall of a tomb chest in the recess.[104] This arrangement did not last long. Sir Stephen Glynn in his 'Notes on Yorkshire Churches' records that the Saltmarshe knight lay in the centre of the Metham/Saltmarshe chapel with both sets of weepers on his tomb chest.[105] Unfortunately the entry describing the effigies is undated, but a subsequent entry recording a second visit to Howden in 1865 provides a *terminus ante quem*.

The windows in the south transept chapel once contained glass commemorating the Metham and Saltmarshe families; though the glass no longer survives, descriptions were recorded in sixteenth and seventeenth century church notes. The Metham window in the east wall was first mentioned in a manuscript in the

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[99] British Library, MS. Add. 29929, fo. 140.

[100] Ibid., fo. 141.

[101] Hutchinson, op. cit. in n. 25, 464.

[102] J.E. Morris, *The East Riding of Yorkshire* (Methuen Little Guides, London, 1919), 201-2: Keeton op.cit. in n. 1.

[103] Op. cit. in n. 99, fo. 139. Corroboration that the figure is a statue and not an effigy is provided by an examination of the figure; it has no pillow behind the head and the perspective effect of the size of the head make it likely that it was located at some height above the ground.

[104] W. Richardson, *The Monastic Ruins of Yorkshire* (York, 1843), vol. II, pl. 54.

[105] Later printed in *Y.A.J.* XII (1892-3), 444.

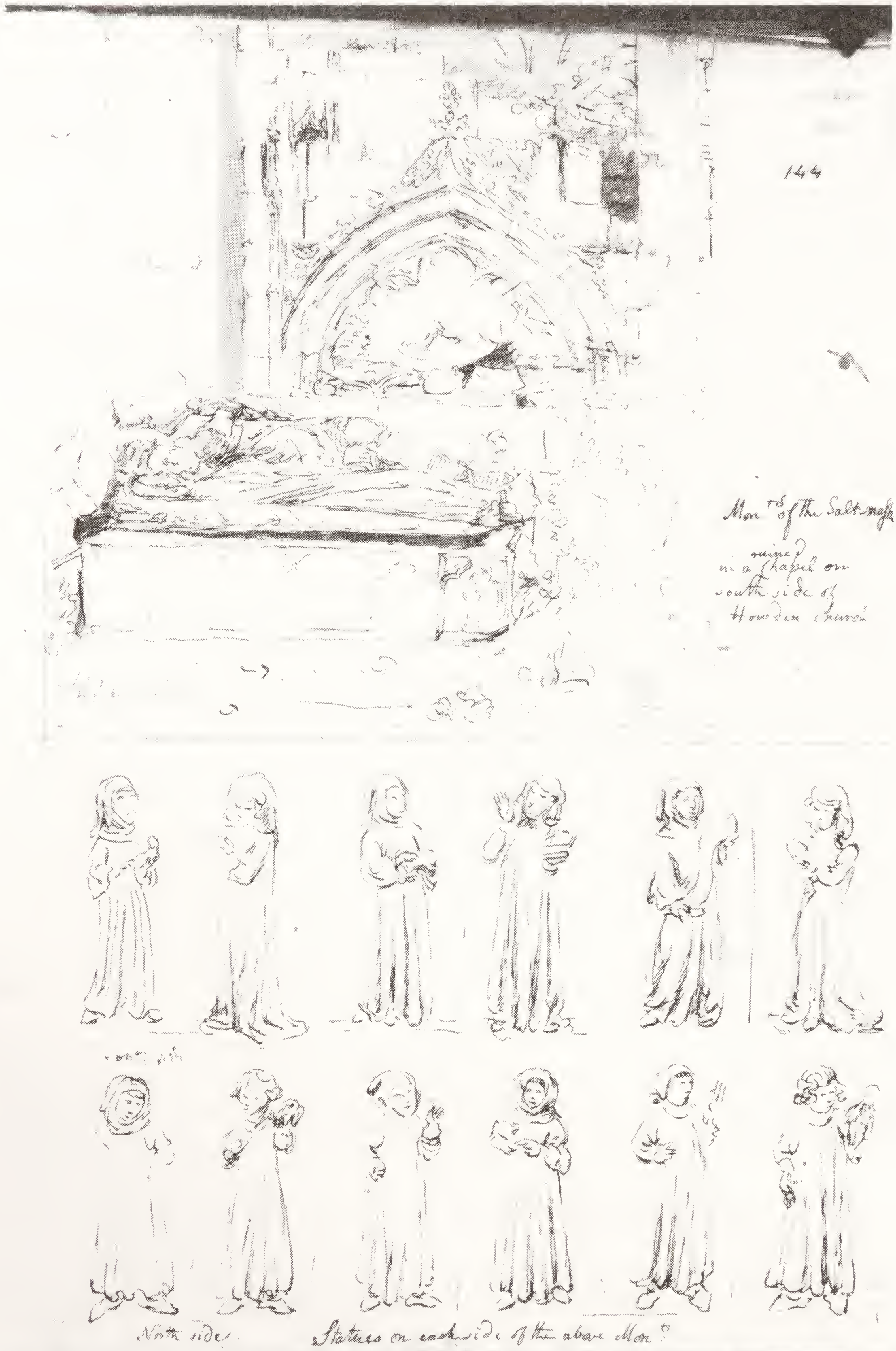

Plate 13. Drawing of *c.* 1790 by John Carter of the de Metham monuments in Howden Minster. British Library, MS. Add. 29929, fo. 140.

(Reproduced by permission of the British Library.)

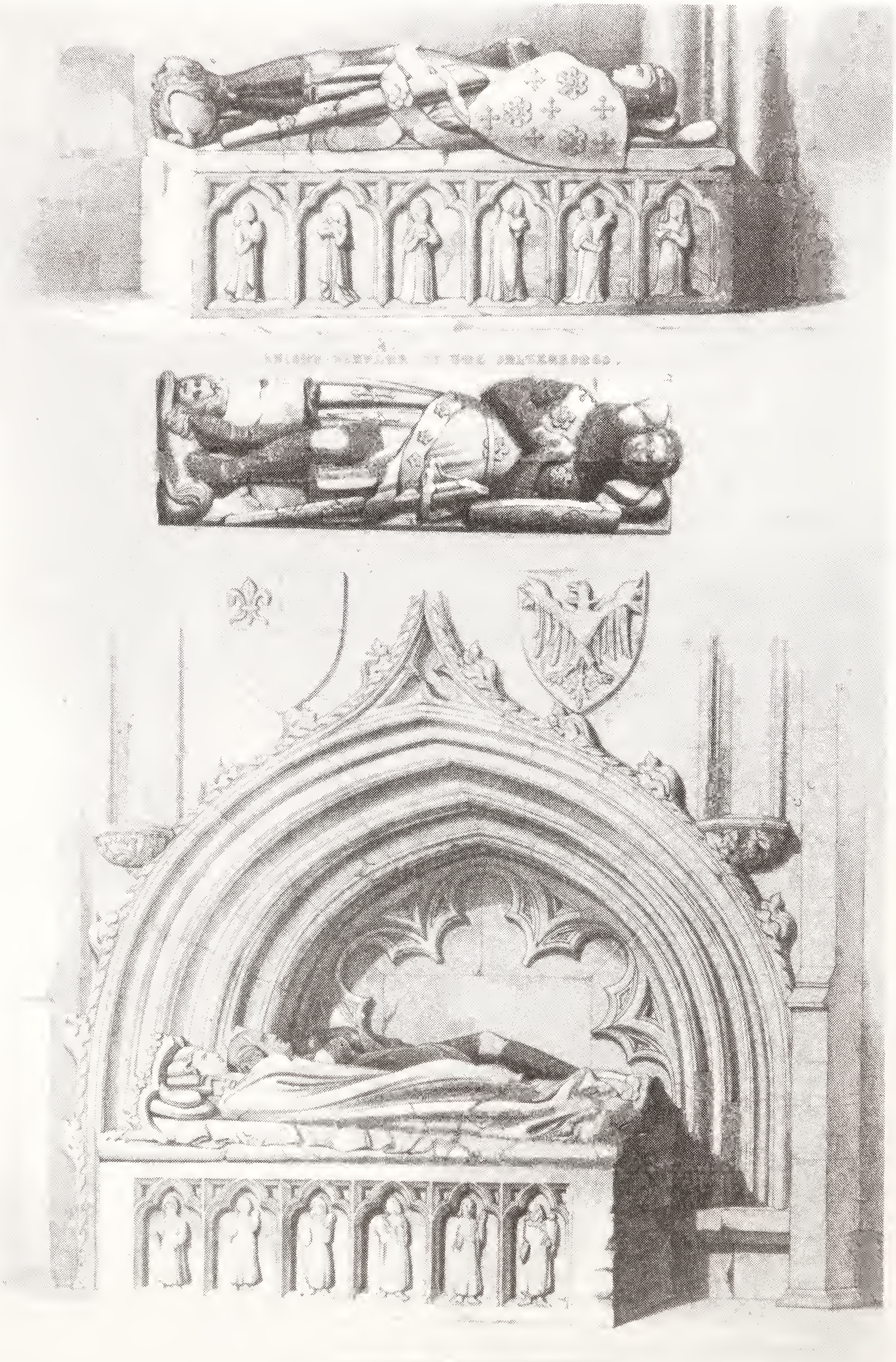

Plate 14. Drawing of the first nineteenth century re-arrangement of the de Metham and Saltmarshe tombs in Howden Minster. From W. Richardson, *The Monastic Ruins of Yorkshire, vol* II.
(Reproduced by permission of the Bodleian Library.)

Dodsworth collection in the Bodleian Library, Oxford,[106] which appears to be a copy, with additions, of the Yorkshire church notes taken by Robert Glover, Somerset Herald, in his visitation of 1584-5.[107] The manuscript is not in Dodsworth's hand and is unfortunately unsigned and undated, but was probably written in the early seventeenth century. Amongst the additional information is a reference, in the middle of an account of the tombs in the Metham/Saltmarshe chapel, to an inscription for the founder of the Metham chantry: 'In Fenestu ibm Orate p Tho: Metham et Alicia uxor ejus.' A fuller account of the window appears in Dugdale's 'Yorkshire Arms'.[108] It is described as being in the east of the chapel and there is a useful drawing of the two donor figures above the inscription, which here is given as reading 'DNA ALICIA DE METHA ... THOMAS'.[109] The drawing shows two sideways-turned standing figures: a lady in a green gown and crimson cloak holding a book and a knight in an heraldic gown holding a shield with the arms of Metham (Plate 15). The fact that this glass is not mentioned in any later church notes suggest that it was probably destroyed during the Civil War.[110]

All that is known of the Saltmarshe window is that it contained the arms of Saltmarshe. It was first noted by Glover in 1584 in his fair copy of his field notes and the reference copied from his original manuscript by St. George, Charles, the author of Harleian M.S. 1420 and the author of the Dodsworth manuscript.[111] A reference in Nathaniel Johnston's post-1666 church notes may be based on contemporary evidence since, unlike any of the earlier sources he comments that 'the glass window hath but a brake'.[112] This suggests that this window was only damaged in the Civil War.

Architectural Context

In order that the mediaeval monuments in the south transept chapel may be better understood, it is necessary to consider its architectural evolution (this is summarised in plan form in Plates 16 & 17). The crossing and transepts form the

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[106] Bodleian Library, Oxford, MS. Dodsworth 137, fo. 100v.

[107] Op. cit. in n. 85, fo. 255.

[108] Op. cit. in n. 82, fo. 129.

[109] An account, also in Dugdale's 'Yorkshire Arms', in the section stated to be a copy of Glover's visitation church notes, contains at fo. 18v a transcription of the inscription in the format of the Dodsworth manuscript. In fact there is no reference to this window either in Glover's original (op. cit. in n. 85) or any of the known copies (op. cit. in n. 86). Dugdale's scribe must therefore have based his version on the Dodsworth manuscript. We know from elsewhere in 'Yorkshire Arms' that Dugdale had access to Dodsworth's own church notes.

[110] A reference 'Orate p Tho Metham and Alicia in a glass window' in Nathaniel Johnston's late seventeenth- century church notes (Bodleian Library, Oxford, MS. Top. Yorks. c27, fo. 241) is almost certainly not based on a first-hand contemporary sighting. There is no mention of the window in Johnston's rough notes on fo. 239v. His fair notes take in other material; they are confused and in parts erroneous. A note at the beginning of the volume by Richard Frank, dated 1756, comments that the sources for Johnston's pedigrees included Dugdale's 1656 visitation and the 1666 visitation and that the church notes may be based on Dodsworth's 1620 manuscript. The latter contains no reference to Howden, so Johnston must have used other sources. It is thus likely that the account of the Metham window was taken either directly from Dodsworth's copy of Glover or indirectly via Dugdale's 'Yorkshire Arms'. It is worth noting that Nathaniel's brother, Henry Johnston, was Dugdale's scribe ('Yorkshire Arms' op. cit. in n. 82, fo. 1).

[111] Op. cit. in ns. 106 and 86.

[112] Op. cit. in n. 110.

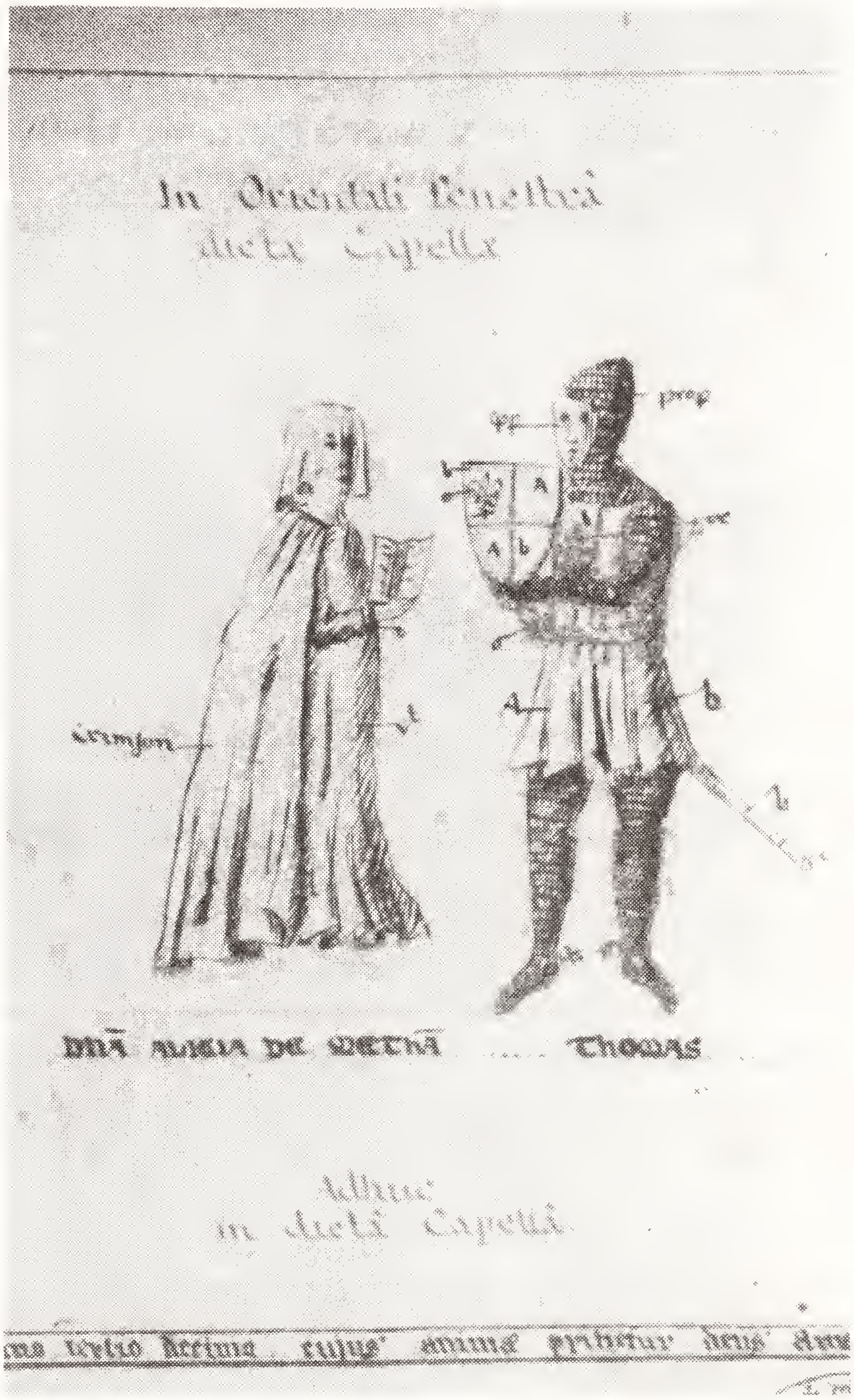

Plate 15. Drawing of donor figures from the lost de Metham window in Howden Minster. From Sir William Dugdale's '*Yorkshire Arms*', College of Arms, London, MS. RR14/c.
(Reproduced by permission of the Chapter of the College of Arms.)

earliest part of the present church with a Romanesque corbel table surviving under the eaves of the east wall of the north transept (Plate 18).[113] The present transepts are the product of the rebuilding of the church, which was begun about the middle of the thirteenth century,[114] and is associated with John of Howden.[115] This took about fifty years to accomplish and was finished about the turn of the century, with the completion of the west front.[116] The *c.* 1300 church would have comprised the nave and transepts largely as they stand today but any central tower would have been a more modest affair and the chancel would have been both narrower and shorter than the present ruin [117] (see Plate 16).

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[113] Both J. Bilson, 'Howden Church. Some Notes on its Architectural History', *Y.A.J.*, XXII (1913), 159 and N. Pevsner, *Buildings of England, Yorkshire : York and the East Riding* (Harmondsworth, 1972), 258 state that the twelfth-century corbels in the north transept are re-used and therefore not *in situ*. This is because they believed that the present transepts were created as part of the mid thirteenth-century building plan. This assessment of the twelfth-century corbel table is unsatisfactory; it would be extraordinary for the thirteenth-century builders to have re-created a Romanesque corbel table in this way. Furthermore, it is not only the corbel table, but the whole character of the masonry below it which is distinctive. The same type of masonry is to be found only in the transepts and the southnave wall at its junction with the transept. It seems probable, therefore,that the thirteenth-century rebuilding involved the whole of the nave, but that the transepts were modified from the existing twelfth century design. The six original eastern transept chapels were the product of this modification and the eastern walls of the transepts were pierced for this purpose, but the masonry above the new arcades remained unchanged. See, however, the 2nd edition (Pevsner and Neave, 1995, p.485).

Another important difference would have been that the transepts had eastern aisles each divided into three chapels, making a row of six, north to south across the church.[118] It is probable that these transeptal chapels were occupied by the prebendal altars of the collegiate church which had been established in 1267,[119] with five prebends and a sixth added twelve years later.[120] These chapels would have been relatively narrow as can be seen by the surviving most northerly example. The two adjacent to the crossing would have occupied the space between the present chapels and the eastern tower pillars, which are now part of the ruined chancel. It was in this thirteenth century church that Sir Thomas de Metham established a chantry at the altar of St. Andrew possibly as early as the 1270s.[121] There is no evidence where in the church this chantry was located, but it may have been at one of the prebendal altars in the south transept. Sir John de Metham succeeded his father and the monument set up to commemorate him and his wife *c.* 1310-12 was a further example of the Metham presence at Howden. The date of the monument is significant because it occurs when there may have been a brief pause in the building work between the completion of the west front and the commencement of the new chancel *c.* 1315.[122] There may therefore have been no active masons at Howden who could undertake the commission and this could have contributed to the decision to procure the effigies from an established workshop.

The first recorded position of this tomb against the pillar (see Plate 12), is almost certainly not its intended original location, but one to which it was moved relatively soon after its erection. It is important in this context to appreciate the limited space then available for monuments in the south transept chapels (see Plate 16). Both the Metham figures have been crudely cut at the head end to

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114. Pevsner1972, op. cit. in n. 113, 258.
115. Bilson, op. cit. in n. 113, 159.
116. Ibid., 162. He states that the architectural details in the lower half of the west front are of the 1290s but that it cannot have been completed until after 1306 because the window at the west end of the north aisle formerly held the shield of Anthony Bek as Patriarch of Jerusalem. He was Bishop of Durham 1284-1311 and was made Patriarch of Jerusalem in 1306 (C.M. Fraser, *A History of Antony Bek* (1957), 165). However, if the west front was indeed completed in the 1290s, there is no reason why the bishop or the college could not have added the glass to the church when he was made Patriarch. N. Coldstream, 'St Peter's Church, Howden', *Medieval Art and Architecture in the East Riding of Yorkshire* in C.Wilson, ed., British Archaeological Association Conference Transactions for 1983 (1989), 110 accepts a date range for the whole of between 1280 and 1311.
117. Bilson, op. cit. in n. 113, 160.
118. Ibid.
119. W. Page, ed., *The Victoria History of the County of York*, vol. 3, (1913), 361.
120. Ibid., 362.
121. See n. 25.
122. Coldstream, op. cit. in n. 116, 117 considers that the building of the choir at Howden may have been under the patronage of Lewis de Beaumont, Bishop of Durham 1316-33.

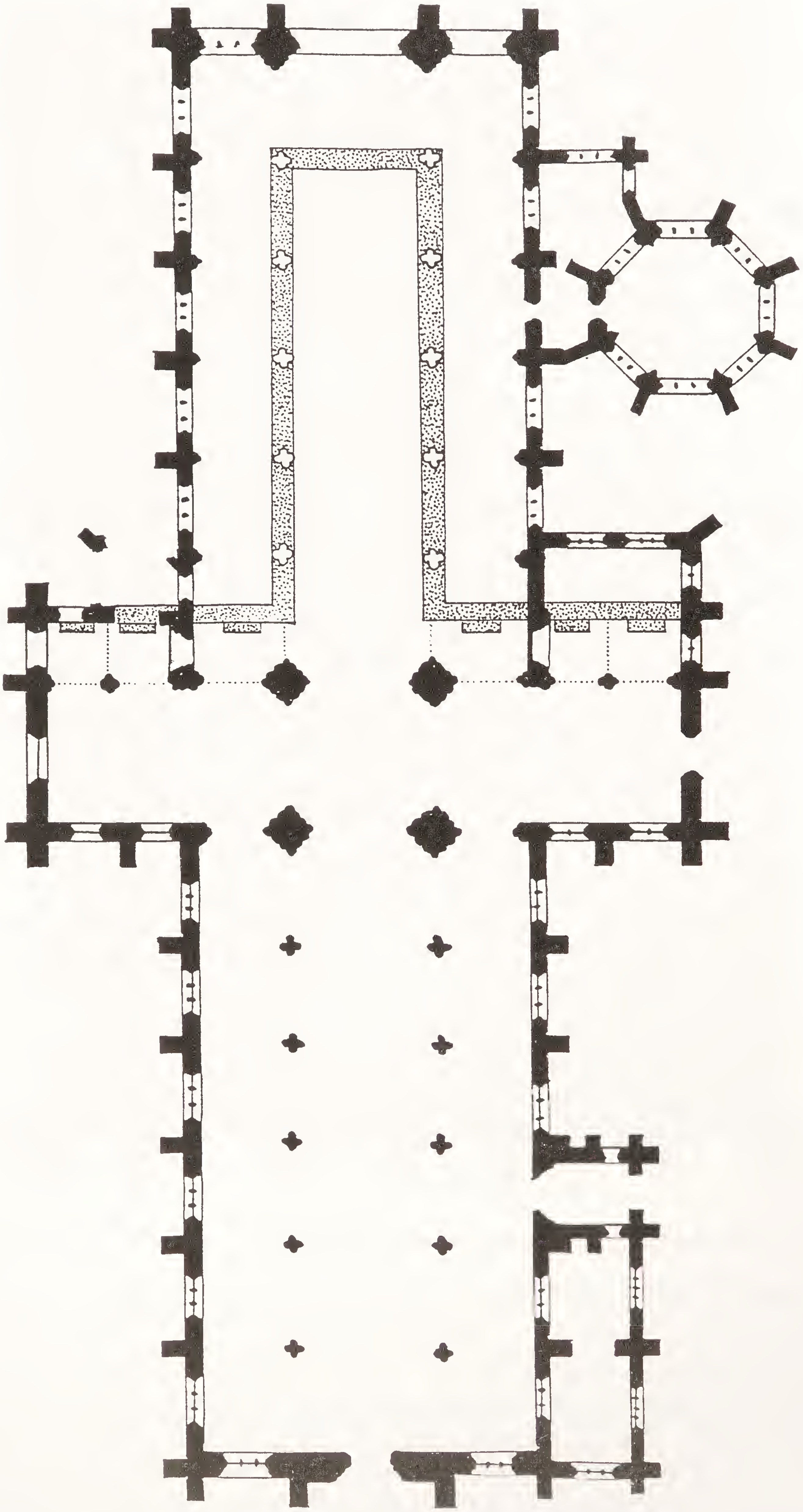

Plate 16. Plan of St. Peter's Howden, with the earlier choir and transept chapels superimposed, to represent their arrangement c.1300.

B. & M. Gittos.

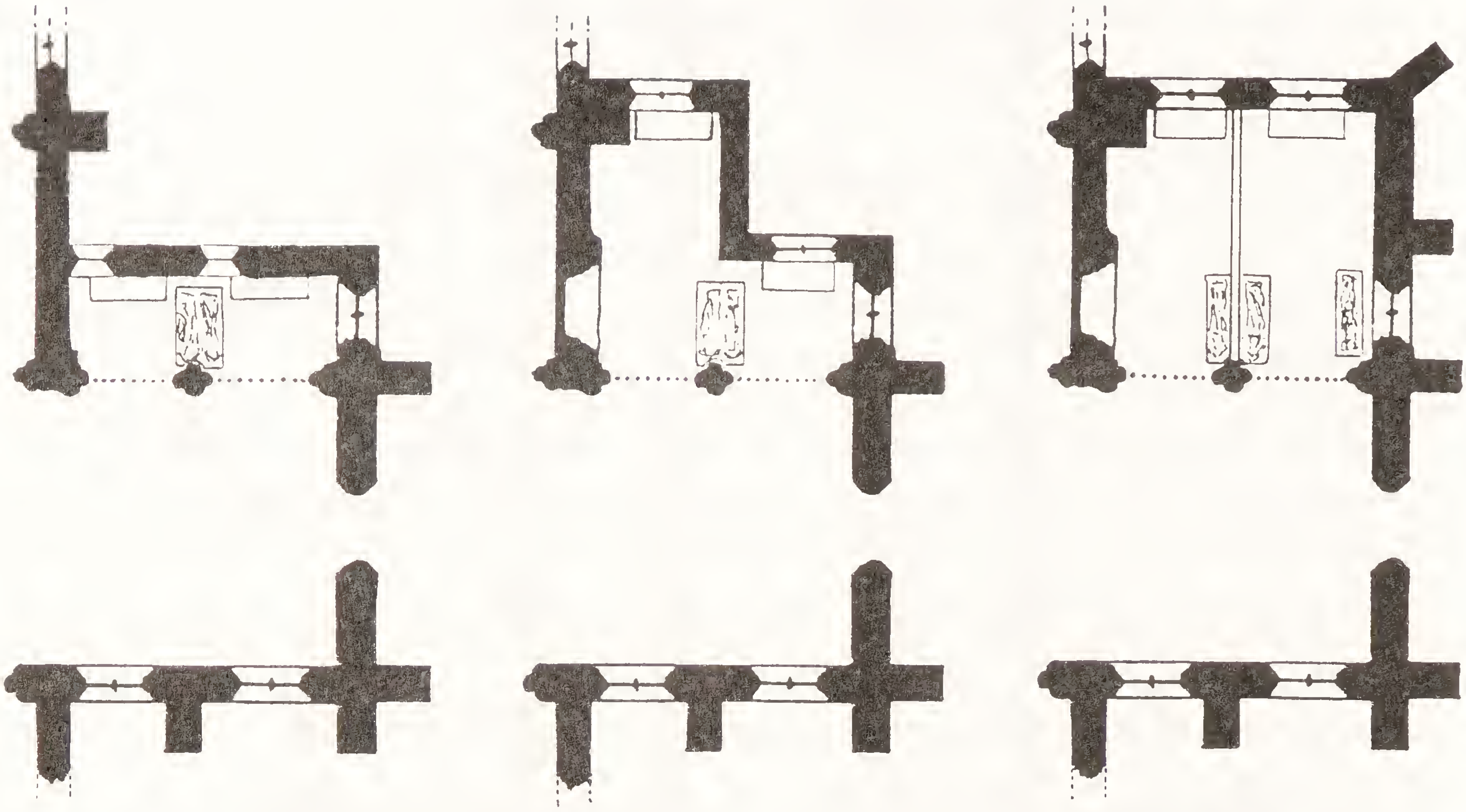

Plate 17a. Early 14th century. Plate 17b. c.1400. Plate 17c. 15th century.

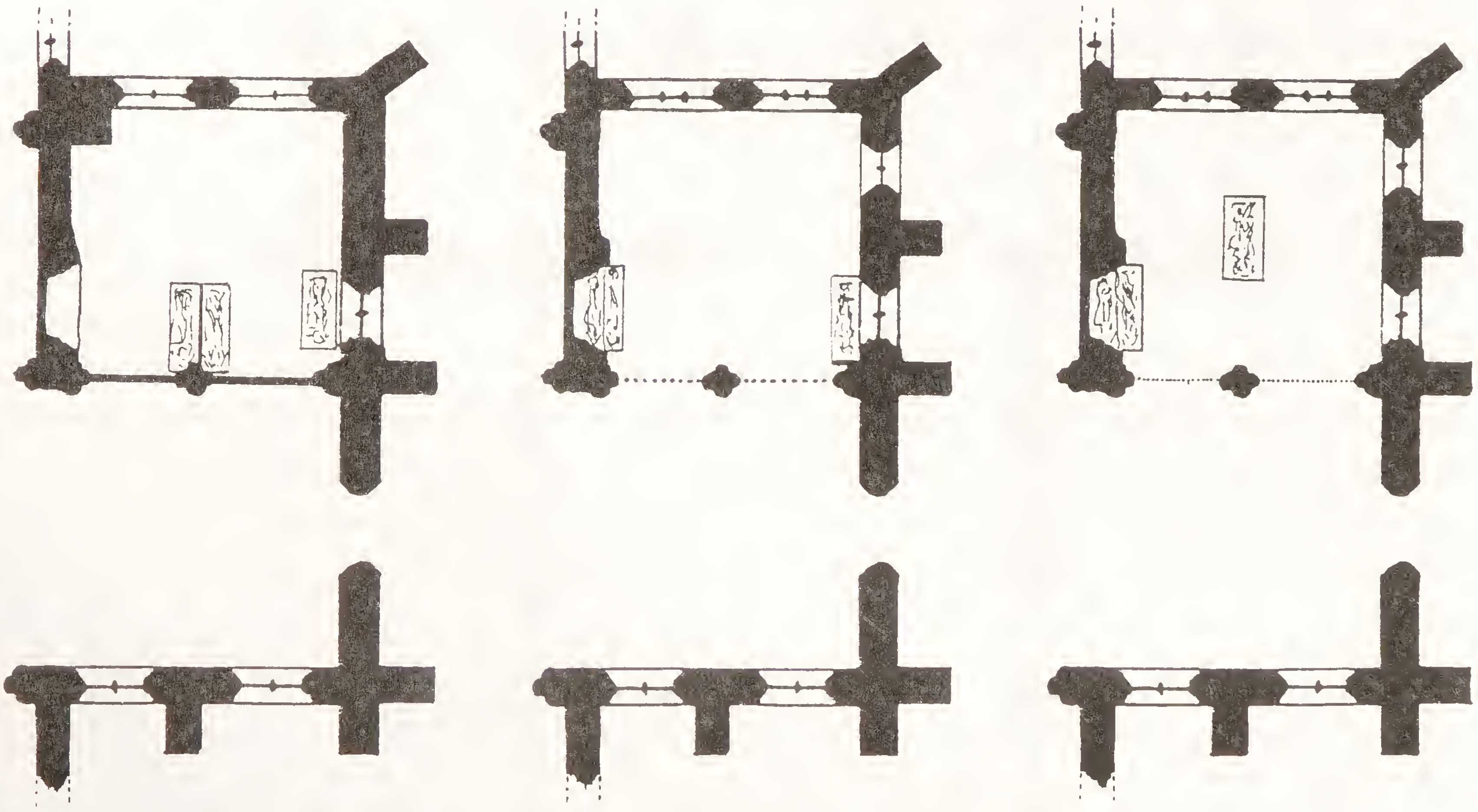

Plate 17d. 18th century. Plate 17e. Early 19th century. Plate 17f. Late 19th century.

Plate 17. Suggested evolution of the Saltmarshe Chapel at Howden from 14th to 19th centuries.
B. & M. Gittos.

enable the monument to fit against the western pillar of the chapel. This partially destroyed the heraldry on the knight's gablette, a crucial element of the monument in mediaeval eyes. The logical reason for causing such drastic damage was a need to fit the monument into too small a space (at a time when the chapels had not yet been enlarged, see Plate 17a). Such crude adaptation of the monument would have maintained access to both the adjacent altars and their piscinae but cannot have been the way it was originally intended to be set up. It is conceivable that

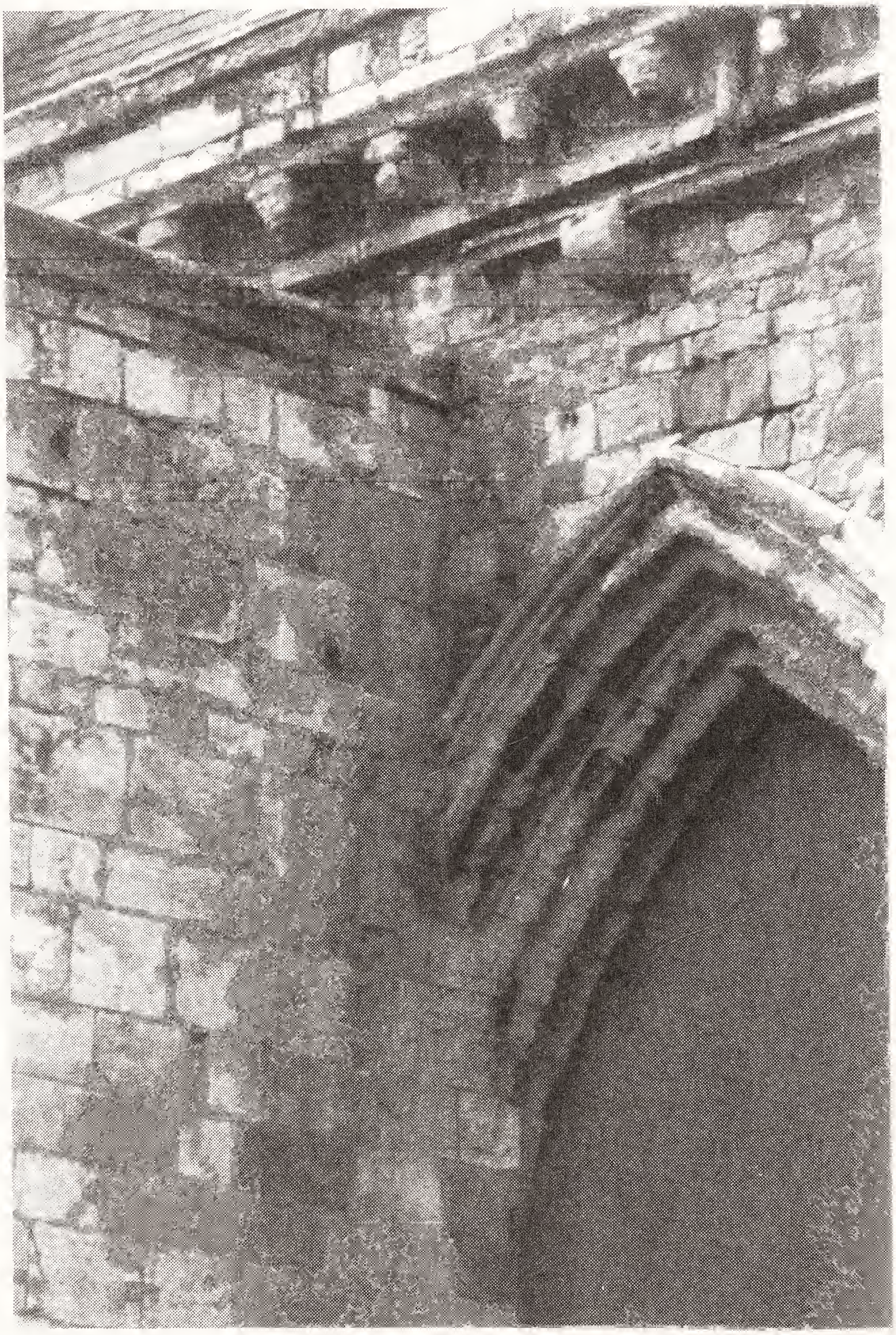

Plate 18. Junction between the thickened north wall of the 14th century choir and the east wall of the north transept (with Romanesque corbel table below the eaves). Photo. B. & M. Gittos.

because of the monument's original position it had been displaced by the new work.[123]

The chancel appears to have been completed in the 1330s,[124] followed by a building pause before work commenced on a richly decorated chapter house which may have been intended as part of the original design,[125] but appears to have been added later. However, it does appear to have been built in two distinct phases, the lower half, below window-level, seeming to reflect a more Decorated style than the upper half, including the windows, which clearly reflect the emergent Perpendicular style. For some reason it was not completed until later in the century. The late fourteenth-century building campaign was the work of Walter Skirlaw, who became Bishop of Durham in 1388 and probably initiated work at Howden immediately.[126] In addition to the completion of the chapter house, this involved the building of a new central tower, which was not finished until later in the fifteenth century, long after Skirlaw's death in 1406.[127]

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[123] It is conceivable that the old choir was left standing while the new choir was built around it, for continuity of service. It could then be demolished at a late stage in the rebuilding. If the Metham tomb was originally set up in this part of the church, it would eventually have had to have been moved to enable demolition to take place.

[124] There is no reliable date for completion of the new choir, but Bilson, op. cit. in n. 113, 163, suggests that its completion would have been well into the second quarter of the fourteenth century.

Returning to the monuments themselves, it remains to consider the arched recess in the north wall of the south chapel. This wall has been locally thickened at its base, to accommodate the depth of the tomb-recess, which results in a step in the wall above the tomb. The matching recess in the south wall of the north transept chapel shows similar thickening, but in this case there is no step. The extra thickness has been accomplished by tapering the wall from its base to just below roof level - a remarkably accomplished piece of mason-craft (see Plate 18). It is very likely that the tapering technique was also originally used in the south chapel and that the step is the result of the upper stages of the wall having been rebuilt when the chapel was restored. The wall above the current position of the step is shown by Carter as broken down (Plate 13) and the restorers, understandably, might not have been prepared to rebuild a tapered wall.

The need to thicken the walls to accommodate the tomb recess was due to the fact that the walls of the new chancel had insufficient thickness for this type of monument. It would, therefore, appear that the tomb recesses had not been designed when the chancel was being built, but were added either at the end of the building sequence or at a later date. As has already been explained, the shields above the southern tomb recess appear to be an integral part of the design and therefore they ought to give an indication as to the person for whom this recess was constructed. If the attribution of the second shield to Hamelton is correct, then the arms should refer to Sybil (Hamelton), wife of Sir John Metham I, who is commemorated by the female effigy now sharing the recess with her husband. However, these effigies do not fit the recess and were set up at an earlier date. A good indication of the style of a canopied tomb recess in Yorkshire at the beginning of the fourteenth century is afforded by the fine example at Goldsborough, where the arch lies beneath a heavy, steep-sided gable. This arrangement is most well known from the royal tombs at Westminster Abbey to Edmund Crouchback and Aymer de Valance.[128]

How much later into the fourteenth century the tomb recesses should be dated is difficult to determine, but the nodding ogee canopies of the niches and their carved bowls with swirling foliage and rose diaper are more typical of the Decorated, than of the Perpendicular, so that a date of *c.* 1350 would perhaps be appropriate. The hiatus of work on the chapter house may have relevance for the building of the two tomb recesses, as that to the north appears not to have been completed. Furthermore, the southern tomb can be related to the lower half of the chapter house through the form of the sub-cusping of the blind tracery, which is repeated in the chapter house stalls (see previous comments on the arched recess as a monument).

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[125] Pevsner 1972, op. cit. in n. 113, 262.

[126] Bilson, op. cit. in n. 113, 163.

[127] W. Greenwell, *Durham Cathedral* (1932), 111.

[128] L.L. Gee, 'Ciborium Tombs in England 1290-1330', *J.B.A.A.*, CXXXII (1979), 29-41.

Thomas de Metham II died in 1355 and might have been responsible for the setting up of the two tomb recesses a few years before his death. The scheme behind the building of the two arches is unclear, but Sybil Hamelton was his mother and this could account for the presence of the Hamelton shield above the southern arch. He married twice and the erection of multiple tombs may be associated with this.[129] Whatever the intended purpose, the recess in the south chapel was subsequently occupied by the effigy of John de Metham, Rector of Patrington.

Rev. W. Hutchinson, writing in 1892, stated that 'a few years ago on the occasion of this chantry [i.e. the present south chapel] being excavated for the formation of mortuary vaults, foundations of walls were discovered indicating the precise L form we can still trace out in the north chantry'.[130] Caution must be exercised in accepting this account at face value because of the limitations of this nineteenth-century evidence, which may be no more than builders' tales, unsubstantiated by expert archaeological interpretation. There are many other possible explanations of footings in this position given the long history of building on this site. Nevertheless, the suggestion that the south transept chapel was extended in two stages does have some merit. The increasingly cramped space which would have resulted from the introduction of the tomb recess with its thickened walls may have forced the need partially to extend the south transept chapels. The resulting L shape would bear similarity to the partially extended north transept chapels (Plate 17b). The former survival of the chancel buttress in the north east corner of the extended chapel does at least indicate that the chapel was extended after the chancel was built.[131] There remains the possibility that the twin tomb recesses, the thickening of the walls and the partial extension of the chapels were all part of a single scheme affecting both north and south transepts.

The cramped conditions in the south transept chapels were finally relieved when the eastern extension was completed, probably well into the fifteenth century (see Plate 17c). To complete this conversion two new windows were introduced into the modified east wall, though the new section of the south wall was probably unfenestrated. The original arrangement of the windows in the thirteenth century east wall is uncertain, but the jamb of one of them remains encased in the north wall of the chapel, presumably *in situ*. The position of this jamb indicates that the thirteenth-century east windows were not synchronised with the bays of the aisle. They could have been of two lights, similar to the only remaining original window, in the south west corner of the chapel, or, perhaps typically mid-thirteenth-century tall, narrow lancets. The fifteenth century windows which replaced them were evidently of two lights as this is how they were shown in Clarke's plan, published in 1850, which had been drawn up prior to the nineteenth-century restoration and alterations.[132]

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[129] Saltmarshe 1909, op. cit. in n. 26, 8

[130] Rev. W. Hutchinson, *A Guide-Book to St. Peter's Church, Howden* (1892), 14.

[131] T. Clarke (attrib.), *History of the Church, Parish, and Manor, of Howden* (1851, reprinted Goole 1982), facing p. 47.

Having established a chronology for the structure of the south transept chapel, it is feasible to consider the three existing piscinae. They are all very plain, giving limited information as to their dates, two being of stone and one of brick. One of the stone piscinae is located in the east wall just to the north of the east-west centre line. It clearly related to the more northerly of the two altars and should be contemporary with the easterly extension of that part of the chapel. The bowl is plain and circular with a central drain hole. Part of the outer edge of the piscina is slightly rebated, possibly to take a door. The second stone piscina is in the south wall, beneath the more easterly window. Its head stone interrupts the sill of the window in a manner which is consistent with the known history of the window's insertion after the piscina was already in place. The heads of these two piscinae are untypically plain and this may be the result of nineteenth century restoration. Certainly the finish of the head of the second stone piscina is very crisp considering that the chapel was roofless for a significant time. These two piscinae are broadly similar in design. However, the fact that they are not identical suggests that they are not exact contemporaries, thus supporting the argument already advanced that the transept was extended eastwards in two phases. Their similarity suggests that the second phase must have followed the first relatively quickly.

The third piscina is also in the south wall, situated beneath the c.1300 window. It is very different from the other two, comprising a brick arch and a stone base which has a quatrefoil-shaped bowl with a central drain hole. The brickwork appears to be mediaeval and previously has been masked by plaster. The piscina is set very low in the wall, even allowing for the fact that the floor has been raised. It would appear that this piscina predates the other two and probably was associated with the most southerly of the altars in the transept, prior to the eastwards extensions. It may therefore date from the end of the thirteenth century and it would have become redundant as a consequence of the chapel being extended. This use of internal brickwork can be paralleled at Beverley Minster, where the brick central tower is clad externally with stone. Furthermore, the early fourteenth-century nave vault at Beverley is of brick plastered over.[133] At Howden it is noticeable that the section of exterior wall which corresponds to this internal brickwork is of rendered rubble (Plate 19), in contrast to the surrounding ashlar, thus supporting the contention that this is surviving thirteenth-century walling. The three piscinae, therefore, relate logically to our understanding of the chapel building sequence.[134]

As explained above, the east window, which contained the Metham glass when the antiquarian notes recording it were written in the sixteenth and seventeenth centuries, dated from the fifteenth century. Thus it was neither that present when the fourteenth-century monuments were set up nor the nineteenth century window which we see today. It must therefore be questioned whether the glass

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[132] Ibid.

[133] Royal Commission on Historical Monuments England, Beverley: *An Archaeological and Architectural Study*, Supplementary Series: 4 (London, 1982), 9.

[134] Keeton, op. cit. in n. 1, 13 generally concurs with the explanation of the piscinae put forward here.

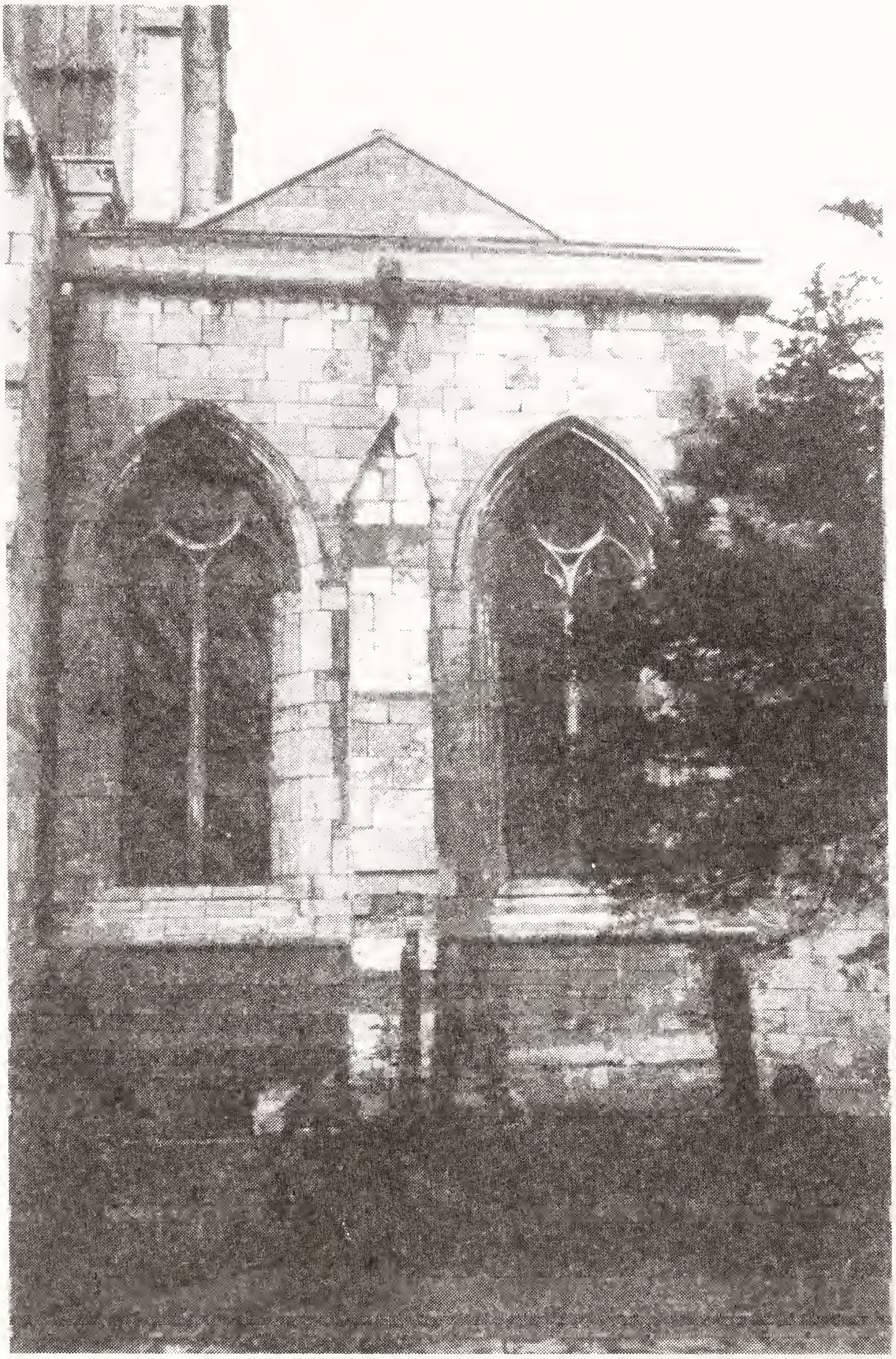

Plate 19. South wall of the Saltmarshe Chapel, with the original 13th century window on the left and the 19th century duplicate on the right. Notice also the rendered rubble walling below the 13th century window.

Photo. B. & M. Gittos.

described in the manuscripts was painted in the fifteenth century or was re-used material. The formulation 'Orate pro anima of the inscription as recorded in the Glover-derived manuscript suggests that the window was painted after Sir Thomas de Metham's death in *c.* 1306, rather than when he established the chantry. Thus a fifteenth-century date is perhaps possible, but the style of the dress and Lombardic lettering of the inscription shown in the Dugdale drawing is not inconsistent with an early fourteenth-century date.

The first indication of a Saltmarshe burial at Howden concerns Elizabeth, second wife of Edward Saltmarshe II, who died after her husband's death in 1481.[135] He, like many heads of the family, willed to be buried at Thorganby.[136] If the Metham family paid for the enlargement of the chapel in the fifteenth century, then their declining fortunes in the sixteenth century[137] may have encouraged them to share the chapel with the Saltmarshes. This could have been achieved by the erection of the partition dividing the chapel in half from east to west, necessitating the crude bisection of the Metham tomb (see above). Kitchen states, though without quoting his evidence, that the partition was removed in the fifteenth century when the chapel was extended eastwards,[138] but an examination of the fabric of the fifteenth-century wall demonstrates that this cannot be true. In the centre of the wall there is a thin vertical scar in the masonry where the wooden partition joined the east wall, suggesting that it was erected after the fifteenth-century extension of the chapel. A possible interpretation of Leland's incomplete notes on Howden (quoted above) was that the chapel was divided into two by *c.* 1535 and that he did not enter the further room containing the Saltmarshe effigy. Conceivably, the partition was removed at the time of the suppression of the chantries in 1547,[139] but all that can be said for certain is that it had gone by the time Dugdale's notes were made in 1641 for he describes all three monuments as being in the same chapel.

At the same time as the postulated division of the chapel, the effigy of Sir Eluard Saltmarshe could have been introduced from elsewhere [140] and the Saltmarshe window set up, to establish a Saltmarshe tradition. There is no evidence for a Saltmarshe chantry chapel having been established at Howden.[141] The references to the 'Saltmarshe altar'[142] can be explained by the fact that this was the name of one of the prebends of the collegiate church, named after the township or village of Saltmarsh, in which it held considerable property.[143] It seems unlikely that the Saltmarshe effigy was present in the chapel during the fourteenth century because there would have been little room for it in the location beneath the south window where it was later recorded. Moreover, the setting up of a fourteenth-century military effigy directly on the floor of a chapel rather than in a recess or on a tomb chest would have been most unusual. The first head of the Saltmarshe family who was definitely buried at Howden was John Saltmarshe, who died in 1514;[144] his incised slab is now set in the chapel floor. [145]

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[135] Saltmarshe 1910, op. cit. in n. 59, 132 states that 'the account of her funeral expenses is among the Howden church records'. The most likely explanation for this is that she was buried at Howden.

[136]. Saltmarshe 1910, op. cit. in n. 59.

[137]. Saltmarshe 1909, op. cit. in n. 26, 32-33.

[138]. T.B. Kitchen, *The Minster of St. Peter, Howden* (Goole, 1949), 14.

[139]. G.H. Cook, *Mediaeval Chantries and Chantry Chapels* (London, 1947), 59.

[140]. The earliest recorded position of this monument, in the south-west corner of the south transept chapel, is almost certainly not its original one, since the drawings show it on an apparently unfinished slab, lying roughly placed on the floor.

[141]. A historical report addressing this question, prepared in connection with a legal dispute in the early 1970s, a copy of which is in the possession of Canon Keeton, comes to this conclusion. We are very grateful to Canon Keeton for access to this document.

[142]. Saltmarshe 1910, op. cit. in n. 59, 130.

[143]. Hutchinson, op. cit. in n. 25, 453.

[144]. Saltmarshe 1910, op. cit. in n. 59, 134.

[145]. Ibid., 77. Saltmarshe states that the slab was moved from the chapel and placed in the body of the transept when the tiled floor was laid. The slab has subsequently been returned to the chapel. At

In 1548 the prebends and chantries were abolished and with their passing went their responsibility for maintenance of the fabric of the chancel and chapels. The chancel survived for 150 years before the roof fell, in 1696.[146] At that time the fortunes of both the Metham and Saltmarshe families were at a low ebb and the south chapel also fell into decay, losing its roof. The last head of the Metham family who is known to have been buried at Howden was Sir Thomas VIII, who died in 1572.[147] There were Methams baptised at Howden until 1658 but from the beginning of the seventeenth century the family seems to have buried at North Cave.[148]

Both the chancel and the chapel were abandoned to the elements and, as Carter's drawing shows (see Plate 13), in the case of the latter a brick wall was erected to seal it off from the south transept (Plate 17d). This period of exposure to the elements is sufficient to account for the weathering of the effigies and of the tomb chest panels. However, the fortunes of the Saltmarshe family revived during the eighteenth century.[149] In 1785-6 the debris was cleared from the chancel and chapter house [150] and in the nineteenth century Colonel Peter Saltmarshe restored the chapel as a burial place for his family. [151] This involved considerable changes. A new roof was provided, the two-light east windows were taken out and replaced by two larger, three-light windows with new heraldic glass. The masonry breaks associated with the insertion of these windows can clearly be seen in Plate 20. To accommodate the larger windows, the fourteenth-century buttress of the chancel was removed from the north-east interior corner of the chapel. The chapel was excavated to make a mortuary vault and the floor of the chapel raised by some twelve to eighteen inches and covered with chequered tiles.[152] A new window was inserted in the south wall copying the thirteenth-century window still *in situ*, immediately west of it. It was probably at this time, during the rebuilding of the upper portion of the north wall, that several sculptural fragments were incorporated above the tomb recess. Although they may have come from monuments, they do not appear to relate to those under discussion.

The monuments were re-arranged twice during the nineteenth century. First the Metham pair were moved into the *c.* 1350 tomb recess with one half of their tomb chest beneath them. The other panel of weepers from the Metham tomb was

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least one other lost tomb to a Metham is known from antiquarian sources. In c. 1690 Henry Johnston recorded: 'On a gravestone in this same Quire: Hic jacen Thomas Methm miles filius/ Alexadri Metham et Anna quae fuit uxor Thoma Methm militis filii Rici Metham/ Qui quid Thomas Methm miles fil Alex Metha/ obiit in festo Sce Anne ano dni 1474 quorum aiabs propitietur deus amen.' (Bodleian Library, Oxford, MS. Top. Yorks. c14, fo. 251v). In 1691 James Torre noted in his 'Churches Peculiars within the Diocess of York': 'On the south side of the north pillar of the steeple lyes an old black coffyn like marble wth a large cross flory at the top and insculpted about its verge thus: HC REQESEVAT VISERA JORDANI DE METHAM QI OBIIT APVO HOLMES EPI^{s} (York Minster Library, Ll(10), fo. 1205). However, this could well have been a misreading of the c.1260 cross slab to Walter de Kirkham which survives in fragmentary form on the south side of the Metham/Saltmarshe chapel.

[146] J. Savage, *The History of Howden Church* (Howden, 1799), 21,footnote.

[147] Saltmarshe 1909, op. cit. in n. 26, 29.

[148] Ibid., 33.

[149] Saltmarshe 1910, op. cit. in n. 59, 172 *et seq.*

[150] Clarke, op. cit. in n. 131, 30.

[151] Saltmarshe 1910, op. cit. in n. 59, 77.

[152] The chequered tiles can be seen in Crossley's photograph, published in Crossley, op. cit. in n. 76, 65.

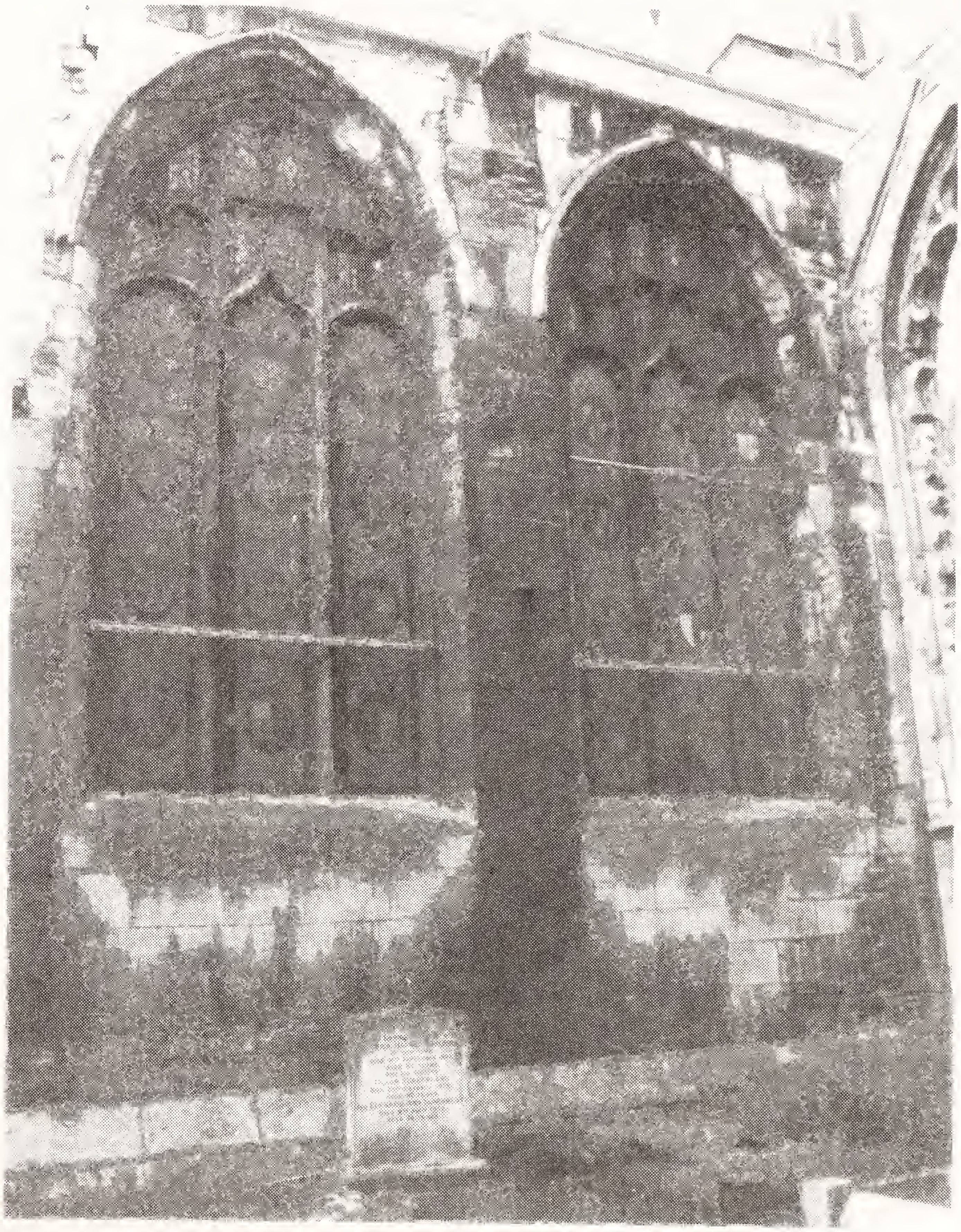

Plate 20. East wall of the Saltmarshe Chapel showing the 19th century windows inserted in the earlier wall, with cracking along the masonry breaks resulting from the insertion.

Photo. B. & M. Gittos.

used to support the Saltmarshe effigy, beneath the south-west window (Plate 17e). This was the arrangement recorded by Richardson in 1843 (Plate 14). The later re-arrangement established the Saltmarshe effigy in the centre of the chapel now supported on both sides by the weeper panels from the Metham tomb (Plate17f). Finally, the chequered tiles were removed to create the scene as it is today.

Conclusion

It thus emerges that neither of the two surviving mediaeval effigial monuments in the Saltmarshe Chapel of Howden Minster is in its original position, nor is either correctly assembled. The two figures beneath the arch in the north wall are a pair, produced by the Yorkshire Series B workshop *c.* 1310-12, and the tomb chest panels with weepers, now supporting the military effigy in the centre of the chapel, belong to them. This tomb was set up to commemorate Sir John de Metham (*ob.* 1311-12) and his wife Sybil de Hamelton. Its original location is unknown, but it was moved relatively soon after its erection to the eastern side of the pillar in the chapel. The single military effigy, representing Sir Eluard Saltmarshe (*ob. c.* 1322), does not belong to any identified Yorkshire series of monuments. Its former position on the floor of the south-western corner of the chapel was again probably not its original one. Finally, there was an effigy, lost since the eighteenth century, of a priest, commemorating John de Metham (*ob.* between 1381 and 1390), lying in the *c.* 1350 tomb recess in the north wall of the chapel, although this is unlikely to have been the purpose for which it was originally intended. However, some aspects of the monuments in their context remain subject to a degree of conjecture, notably the stylistic origin of the Saltmarshe effigy and the chronology of the partition which once bisected the Metham tomb and the chapel.

The investigation of the monuments at Howden has demonstrated that in order for the monuments and their history to be fully understood, it is necessary to examine in detail the architectural history of the building which houses them, their historical context and also the antiquarian sources which comment upon them. The multi-disciplinary approach employed at Howden has greatly increased our understanding of these monuments and presents exciting possibilities for its employment elsewhere.

Acknowledgements

We would like to thank Canon Keeton for his assistance and advice over many years and for commenting on the paper. Thanks are also due to Richard Knowles, Philip Lankester, Nick Norman and Tim Sutton for comments. We are also grateful to the Chapter of the College of Arms for permission to reproduce Plates 10, 11 and 15; the Bodleian Library, Oxford for permission to reproduce Plates 8, 12 and 14 and the British Library for permission to reproduce Plate 13. Assistance has also been provided by the Borthwick Institute of Historical Research, Goole Public Library and Yeovil Public Library.

A REINTERPRETATION OF THE ST. WILLIAM WINDOW IN YORK MINSTER

by Ben Nilson

The St William Window in the north choir aisle of York Minster is not only one of the most famous works of medieval stained-glass in the country, but its one hundred painted panels depicting the life and miracles of St. William of York are also a rich source for the study of pilgrimage and the cult of saints. The window was produced by the John Thornton workshop, which had recently completed the Great East Window, sometime near the year 1414.[1] By that time William's cult had existed in a modest way at York for over 250 years. Since 1414 the individual panels have been re-ordered, probably during releading and probably several times. The last of these was the restoration carried out by the Minster glaziers in the early 1950's. As well as making repairs on the physical state of the glass they and previous restorers attempted to return the panels to their original positions and thereby revive the story and message that the window was created to tell. I hope to show that the original order and identification of individual panels are still misunderstood.

The St William Window has by no means been ignored by scholars. The first recorded attempt to understand the narrative in the window was made by the late seventeenth-century antiquarian James Torre.[2] There is strong reason to believe that Torre saw the panel sequence before it had been much altered from its original state. The antiquarian John Browne was next to examine the window, although his efforts went unpublished until 1915.[3] The first modern and scholarly examination of the window to be published was the nineteenth-century work of James Fowler, remarkable for both its sheer size and scholarship.[4] During the re-leading of 1895 the glaziers took the opportunity to reorder the panels exactly to Fowler's plan.

The next two studies were of very different sorts. F. Harrison recorded the post-1895 order of the glass, relying on Fowler for the identification of the subjects.[5] J. A. Knowles, however, re-examined the iconography of the window panel by panel using both Fowler and Browne and, in a later work, made several shrewd

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1. For the dating of the window see Tom French, 'The Glazing of the St, William Window in York Minster', *Journal of the British Archaeological Association* vol. 140 (1987), pp. 175 - 81, and see the discussion below.
2. Torre's records of 1690-1 can be found in James Fowler, 'On a window Representing the Life and Miracles of St. William of York', *Yorkshire Archaeological Journal,* vol. 3 (1874), pp. 198 -348.
3. John Browne, *A Description of the Representations and Arms on the Glass in the Windows of York Minster* (York 1915).
4. Fowler, op.cit. in n. 2.
5. F. Harrison, *The painted Glass of York* (London 1927), pp. 100-109, 210-212.

technical observations.[6] Nevertheless, he did not attempt a revised theory for the original iconographic scheme. When the glass was returned from wartime storage in 1955 individual panels were returned to legibility but the glass remained in the order suggested by Fowler, except for seven changes involving three panel replacements and four rearrangements.[7] Nothing has been done to the window since 1955. The only important scholarship on the window was an 1987 article by T. French examining the donor panels and the dating of the window.[8]

Transoms divide the window into four main sections plus the tracery. Each section has twenty-five panels in five rows, except for the second which has thirty panels in six rows. In the corresponding window in the South aisle, devoted to St Cuthbert, all four sections have twenty-five visible painted panels in five by five squares. However, it is not the transom that is out of place in the St. William window. Casual examination shows it to be at about the same height as the corresponding transom to the South. The extra row is accommodated because the second section's panels are shorter than those in the rest of the window. A second peculiarity is that the second transom is so wide that it completely obscures row 14 when viewed from below. As a result the third section has only twenty visible panels. The hidden row, now filled with clear glass, was probably originally filled with images. Three facts support this: First, the corresponding and equally occluded row in the Cuthbert window is filled with narrative panels. Secondly, many of the St William panels seem to be part of incomplete sequences. The missing panels could make up the numbers to fill the blank row. Finally, the suggested pattern given below would require an additional painted row between rows 12 and 15 (13 is made up of small canopies under the transom). Thus there were originally 105 panels painted with scenes from William's sainthood.

The window also can be divided into several iconographic sections. At the bottom is a row of five donor panels.[9] The story of St. William's life then progresses upwards, moving from left to right within each row. Because he is a saint, William's life includes the events after his death, made up mostly of miracles at his tomb and shrine. It is possible to divide the scenes according to those occurring before, during and after the translation of William's relics. Above the subject panels are a number of lights in the elaborate tracery, containing figures of archbishops and kings and, at the very top, the Virgin Mary and Christ in majesty. Only the main window will be discussed here, as the arrangement of the tracery lights is relatively uncomplicated and almost certainly correct in its present format.

Several of the panels are heavily damaged and reordered, particularly below the first transom, as one would expect from their accessibility to injury and tampering. By Torre's time three of the lower panels, described by Fowler as containing only fragments,[10] had been moved to the lowest row and the donor panels moved to a higher and more visible location. Although the fragmented panels were later removed, pictures of all three survive in the Minster Library confirming that 2a and 2b were indeed fragments, but that 2c was a distinct although much damaged scene with several figures. These three panels, moved to positions 2a, 2b and 2c in 1895, were all removed in 1955 and replaced with panels from other windows.[11] 2a and 2b were probably disassembled for use in patch repairs and 2c was eventually moved to window sIV. Two of the replacement panels might be from this window, or at least from another of John Thornton's making, but are virtually indecipherable. The other new panel, now in 2c, has been described as "William as treasurer", but appears to be a miracle scene and has been treated accordingly.

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[6] J. A. Knowles, 'Additional Notes on the St. William Window', *Procs of the YorkshireArchitectural and Yorkshire Archaeological Society,* vol. 1, no. 2 (1934), pp. 5-55; Technical Notes on the St. William Window *Yorkshire Archaeological J.*, vol. 37 (1948-51), pp. 148-61.

[7] E. Milner-White, *Friends of York Minster Twenty-seventh Annual Report,* p.29.

[8] French, op.cit. in n. 1.

[9] Fowler, op.cit. in n. 2, p. 200.

[10] Ibid., pp. 210-11.

The subject matter is perhaps the greatest of several difficulties presented by the study of this monument. Our knowledge of what the early fifteenth-century glaziers and canons considered to be crucial elements of William's Life (which was itself written centuries previous to the construction of the window) is limited. St William performed few miracles before his death, and so several panels were filled with relatively routine events which can be difficult to decipher. For example, many key points in William's career consisted of litigation, which is difficult to depict in glass without ambiguity. There are five panels showing letters being passed to or from a pope. Not only is it difficult to discern whether the letter is being sent or received, but there is no concrete indication as to which of the five possible popes is portrayed in each case. The meaning of the panels becomes more problematic in the top half of the window, which depicts miracles performed by the saint after his death. Because they are iconographically standardised in format, with no guarantee that the glaziers put them in chronological order, any reconstruction of the later panels can be speculative at best.

Most of the panels have a painted architectural frame, which can be an aid in determining their original location. This frame consists of a lintel (in some cases almost an arch) with supporting piers forming a border for the main scene (see plate 1). Those panels in rows five, twelve, eighteen and twenty-four lack the lintel, as they are left open at the top to fit the small, cinquefoil panels directly under the transoms in rows six, thirteen, nineteen and twenty-five. The cinquefoil panels, although technically separate, are very short and are entirely occupied with elaborate canopies for the scenes below. Iconographically, the two rows can be considered one. Sometimes there are small label stops painted at the tops of the main panels to match the often unique structure of the canopy above. In some panels lintels appear to have been removed and replaced with background glass. This suggests that some of the closed panels were relocated at an early date and altered to fit a new position under a transom.[12]

Each scene is set against a red or blue rinceaux background. The original colour is very important, and can be one of the great difficulties with the St. William window. Some panels contain little background glass to examine, and problems are worsened by severe weathering and the insertion of both modern and re-used medieval glass. A degree of certainty as to the origin can be obtained by examining the diapered rinceaux of the backgrounds. Although at least two different artists were involved in painting the rinceaux, it has a fairly standardised pattern.[13] The

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[11] Milner-White, op.cit. in n. 7.

[12] Knowles, op.cit. in n. 6, p 149.

[13] Ibid., p. 155.

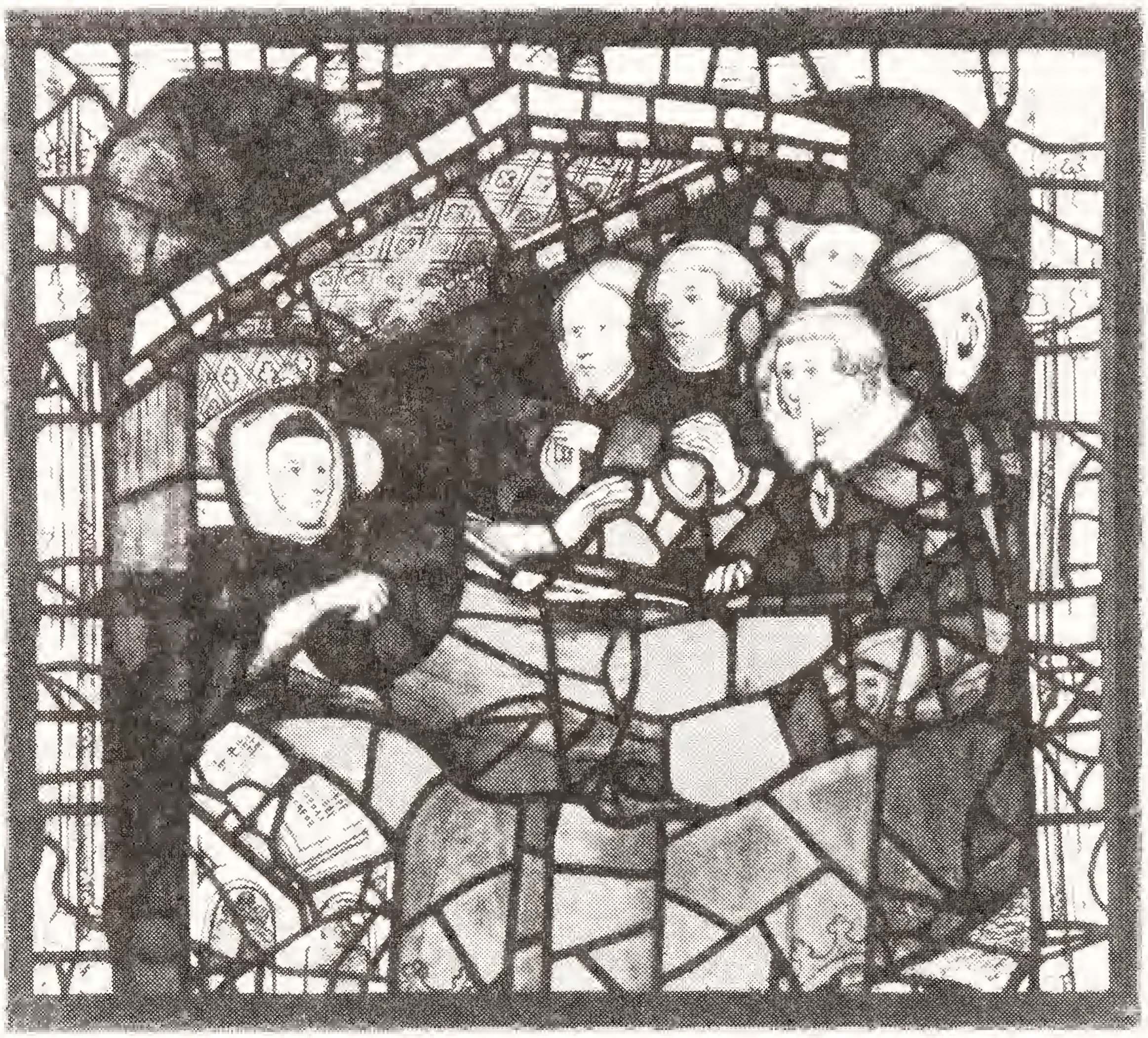

Plate 1. Panel 21d. William, smitten with fever, foretells his death.
Photo: Royal Commission on the Historical Monuments of England.
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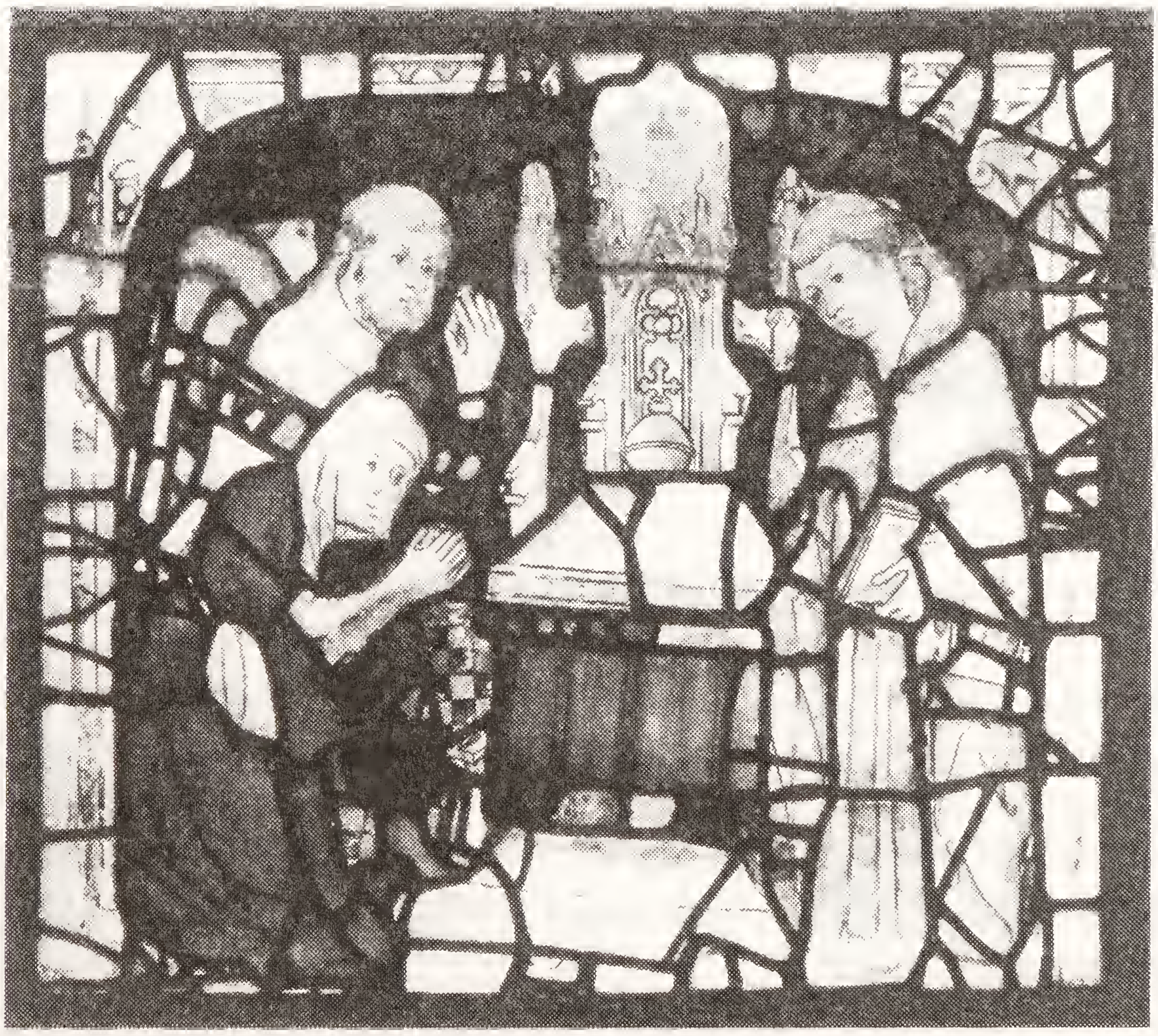

Plate 2. Panel 17e. A woman afflicted with leprosy.
Photo: RCHME. © Crown Copyright.

more foliate design there is, as opposed to blank modern or corroded glass, the greater likelihood that the background is original. Furthermore, the pattern was originally moulded to fit both the figures of the main painting and the painted architectural frame. Where substantial areas of the motif fit themselves around the subject it can be said with increased confidence that the glass is not only original but in its original panel. Almost complete certainty is provided by the occasional presence of a thin line in red or blue following the contours of the framing (plate 2). If this exists in substantial quantity, as it does in at least ten panels, then the background is almost certainly original. The likelihood of a repairer finding a piece of medieval glass that had a border exactly matching the curves of the frame is extremely small.

It has been assumed that the backgrounds within each row alternate in the order Blue - Red - Blue - Red - Blue (hereafter called the "blue sequence"). This would give the entire window an appearance of vertical bands.[14] It would thus complement the St. Cuthbert window (sVII) in the opposite transept, whose rows are all in the order Red - Blue - Red - Blue -Red (hereafter called the "red sequence"). If the blank panels are included, the extension of the blue sequence over the entire 105 main panels of the St. William window would require three blue panels for every two reds, for a total of sixty-three blues and forty-two reds. At present there are forty-nine blue, forty-eight red and eight missing original panels. Fowler accounted for this discrepancy by supposing that four backgrounds had been altered from blue to red, two reds moved from row 14, now blank, and its three blues lost.[15] Yet even this is not sufficient to make up the deficit. To fit a banded pattern in the blue sequence we would have to assume not only that all eight lost panels were originally blue, but that at some time a total of six blue backgrounds were changed to red. Fowler's examples of panels that have been altered do not always convince. For example, the panel called "William being anointed by the Holy Ghost", one of those which Fowler assumed was originally blue, has the telltale outline on its rinceaux that proves that it was always red (plate 3). Although many other backgrounds appear to be made up entirely of replacement glass whose originality of colour cannot be confirmed, this is as true of the blue as the red. There is no reason why only blue panels would be lost, and only blue panels converted to red and never vice versa.

Knowles, following an idea of Browne's, tried to explain the overabundant ruby glass by postulating that the upper half of the St. William window originally had the same colour scheme as the Cuthbert Window (i.e. banding in the red sequence). He proposed that the windows flanking the high altar were originally only at aisle height; that to the North portraying the story of St. William's life while that to the South showed his posthumous miracles. They were only combined and the eastern transepts heightened when Cardinal Langley donated the expenses for a separate St. Cuthbert window.[16] T. French has given several arguments to counter this theory, to which I can add two more.[17] The proportion of red to blue background glass is nearly even in both sections of the window, and thus the divided window theory does not solve the problems with the banded sequence. In addition, the subject panels do not readily divide into two equal sections corresponding to the original contents of two separate windows.

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[14] Fowler, op.cit. in n. 2, p.206. The other authoers agree.

[15] Ibid., pp. 207-8.

[16] Knowles, op.cit. in n.6, p. 150.

[17] French, op.cit. in n. 1, pp. 179-80.

All the many problems mentioned above can be solved by proposing a different pattern for the St. William Window. The number, form and iconographic sequence of panels fit a chequerboard arrangement, with rows alternating in the blue and red sequences. For example, if row 9 is in the blue sequence, then both 8 and 10 would be in the red sequence. In this pattern each panel is followed by one of the opposite colour, even from row to row, rather than the last blue on one row being followed by the first blue of the next. It would require the original number of panels of each colour to be 52 and 53. In the St. William window there are presently just two more blues than reds, and one of the former is a re-introduced panel that may not belong. There are also at least two more lost panels of unknown colour and, in all likelihood, another five. This leaves more than enough room for error using the alternating pattern, and avoids the premise that panels have been consistently tampered with or that one colour was considerably less likely than another to suffer misfortune. A reconstruction of the window in this pattern can be easily made to conform closely to the arrangement seen by Torre.

One row in particular, row 12 immediately below the main transom, supports the chequerboard theory. It depicts the miracle legend of a certain Ralph who lost both his eyes in judicial combat but regained them at William's tomb. The story is well known and is one of the three miracles for which William was canonised. At present the five panels are not in the correct order. The first panel is described by Fowler as "Ralph and Besing waging battle", and by Toy as the two litigants challenging each other (plate 4). Knowles, however, correctly describes it as "Ralph receiving two new and better eyes".[18] It is evident that Besing is not present and that Ralph's eyes are depicted smaller and in a different style than usual, in accordance with the description of the miraculous new orbs given in the legend. The next three panels (presently 12b, c and d) are universally reported to be "Ralph and Besing taking oaths", "Ralph and Besing fighting", and "Ralph bereft of an eye". The last of the five is erroneously described by Fowler as "Ralph gets two new eyes", but Knowles is again correct in calling it "Ralph praying at St. William's tomb", for it appears as though the kneeling figure lacks eyes (plate 5).

The first panel, which has a red background wrongly described as blue by Fowler, is the last episode and therefore belongs in the fifth position (12e). If the other four are moved one to the left to accommodate it, then we have the Ralph and Besing story plainly and in full. No other arrangement would make sense. The colour pattern that results is the red sequence, and the only way to alter this would be to assume that all the panels have had their backgrounds altered (exceedingly unlikely) or that some of these panels properly extend into an upper or a lower row. Knowles claims that they have been altered to the open variety of frame by the replacement of a lintel with background glass, and therefore do not

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[18] J. Toy, *A Guide and index to the Windows of York Minster (York 1985)*, p. 11. See also Knowles, op.cit. in n. 6 (1934), p. 39.

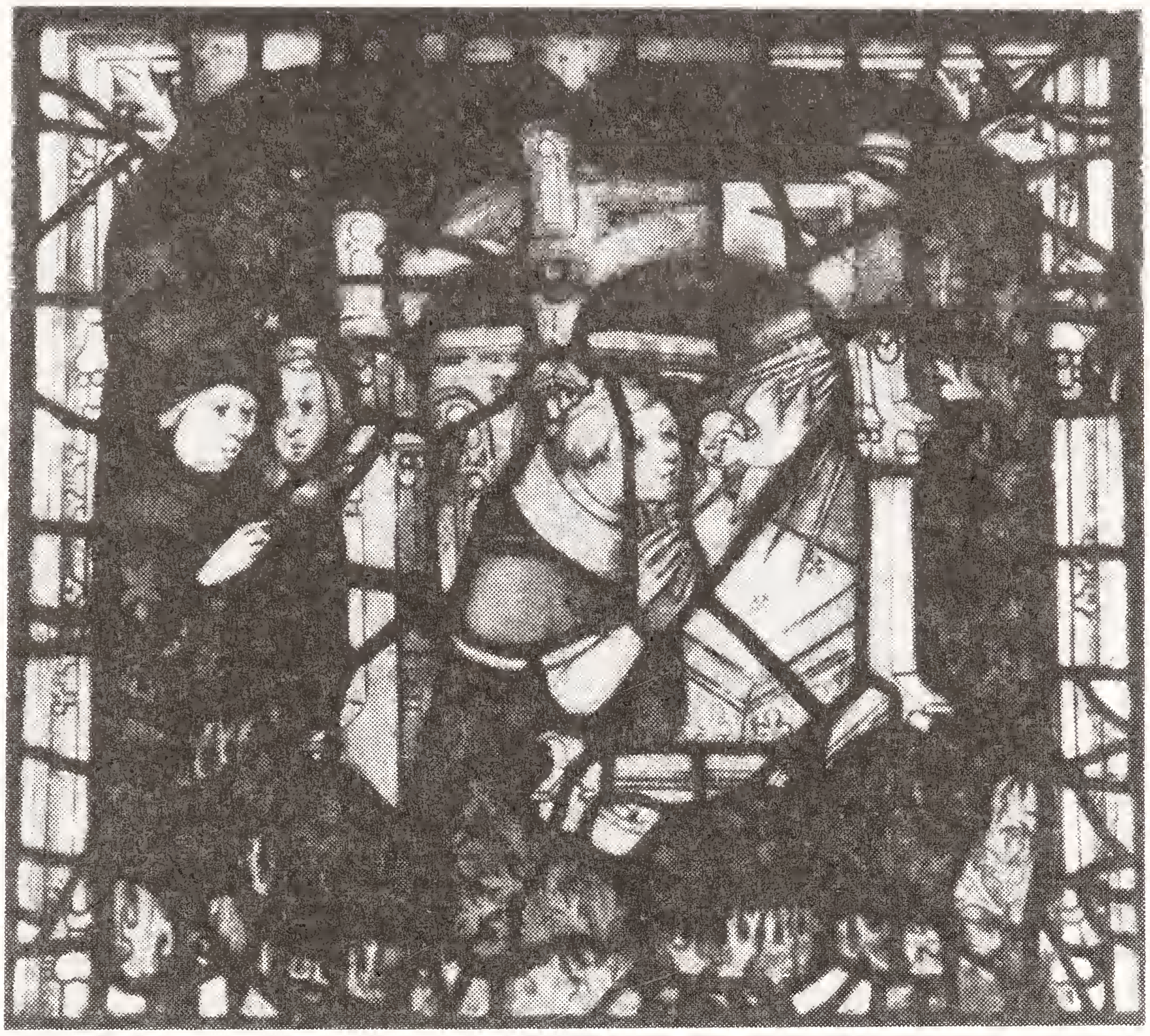

Plate 3. Panel 7c. William, in exile, is enlightened by the Holy Spirit.
Photo: Dean and Chapter of York.

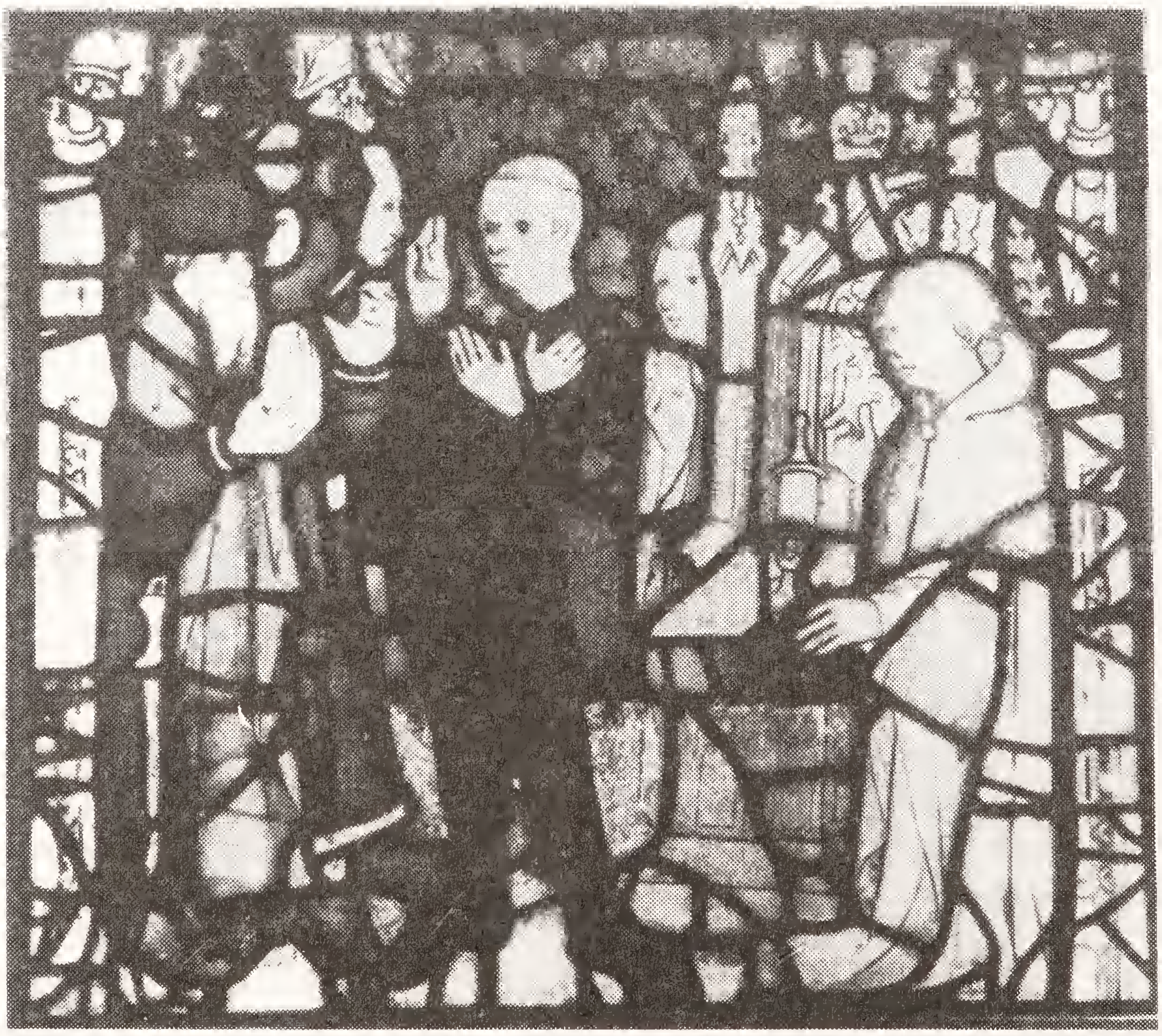

Plate 4. Panel 12a. Ralph with his new eyes.
Photo: Dean and Chapter of York

belong under a transom.[19] However, it is likely that the appearance of a continuous line following a supposed lost lintel is an accident of new lead lines made during repairs (see plate 5). It also seems unlikely that a continuous narrative would be divided between rows, especially if the other panels were placed above the thick main transom. This is also the exact position and order of these panels as seen by Torre. Beyond reasonable doubt these five panels should be in the order just described, proving the existence of at least one row in the red sequence.

The window can be rearranged in an order that satisfies the chequerboard scheme, the positioning of open and closed frames and, most importantly, the narrative of the window. The placement of the lower panels is the most crucial, since they follow a continuous, chronological sequence that can be verified. Unfortunately the loss of three of the lowest panels prevents certainty over the entire ordering, because the chequerboard pattern causes the sequence and colouring of the first row to affect all the rest. In addition, the lowest panels are the most disordered, being in disarray even in Torre's time. Overall, however, it will be shown that the window as he saw it was much as it was in the early fifteenth century.

Much of the argument of this paper relies on the two appendices. The subject matter of individual panels is explained in appendix 1, along with reinterpretations of certain scenes. The final suggested reconstruction of the window is presented in the diagrams of appendix 2. Only a brief discussion of the overall scheme, followed by a longer treatment of the donor panels, remains to be put forth here.

Each row of five scenes, from the marriage of William's parents until his own death, has a separate, unified theme. In addition, larger sections of the window seem to have been united in an iconographic scheme. It can be said that rows 2 to 4 comprise the rise of William, while row 5 is the fall (for William's history, see D. Knowles, "The Case of St William of York"). The lowest point of William's life thus occurs immediately below the sharp dividing line of the first transom. Above that boundary his ascendancy until his death in row 10 is dealt with at length. After the panel representing William's death only rows 12,18 and 20 have an obviously coherent theme. The themes of all the rows are summarised in the following table.

Row 1: Donors.
Row 2: Scenes from William's life before the dispute for the Archiepiscopate. The marriage of William's parents and his baptism are extant. Although a birth panel might be expected there is no room for a panel between the marriage and the baptism that would fit the possible colour schemes. The two lost panels in this row probably illustrated scenes from William's youth and his period as treasurer.
Row 3: William's election, including his acceptance of office and the gathering of his opponents.
Row 4: Events connected with the continuing dispute over William's consecration that occurred during his first period in office, in particular the faithful execution of the conditions set by Innocent II and the dispatch of the pallium by Lucius.
Row 5: The events of William's deposition, from the death of his supporter Pope Lucius II, through the election of Eugenius and the enthronement of Murdac.
Row 6: Canopy.
Row 7: William in exile. The last three panels require special explanation, for in fact

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[19] Knowles, op.cit. in n. 6 (1948-51), p. 149.

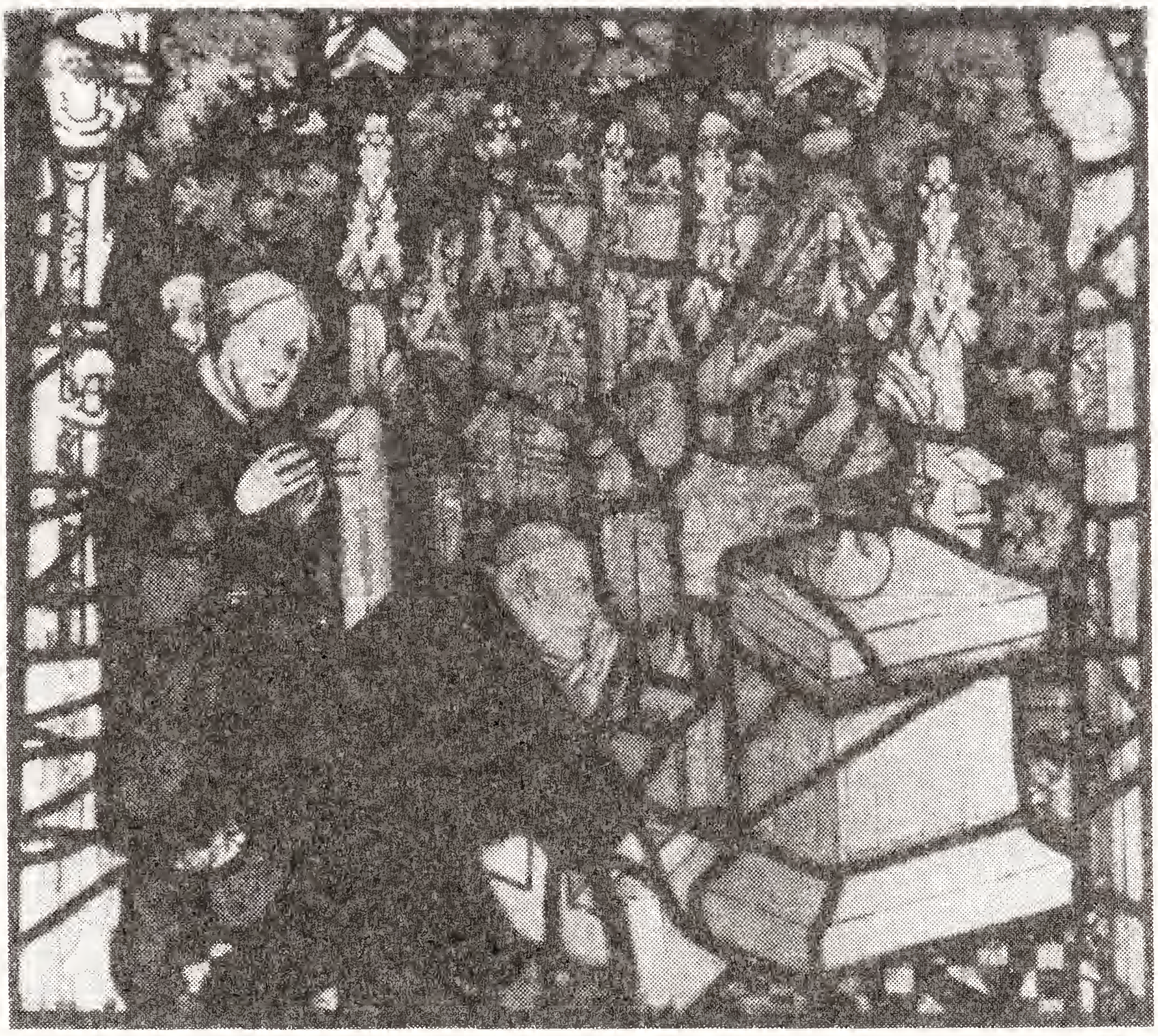

Plate 5. Panel 12e. Ralph prays for help at the tomb of St. William.
Photo: Dean and Chapter of York.

the death of William's opponents occurred before his miraculous awareness of it. Thus the triple death scene is before the augury of the golden spurs. In between these two panels is a scene of William receiving the Holy Spirit (plate 3), which is specifically mentioned as the medium of the prophecy.

Row 8: William's long-delayed acquisition of the pallium and return to Britain.
Row 9: His triumphant entry and consecration at York.
Row 10: William's short second term as archbishop, and his death.
Row 11: Burial and the start of miracles at the tomb.
Row 12: The judicial combat between Ralph and Besing and Ralph's recovery of his eyes.
Row 13: Canopy.
Row 14: Clear and Fragmented glass.
Rows 15, 16 and 17: Miracles at the tomb.
Row 18: The events concerning Edward I and his journey to attend the translation of William's remains. It appears as though one panel is missing, probably from the first position. It has been replaced by 21c, a cripple at the feretory. Strictly speaking it cannot be placed there, because the feretory was not in existence before the translation, but there is no room for a blue panel above this position without moving another one from its position as seen by Torre.
Row 19: Canopy.
Row 20: Events surrounding the translation of William's relics. Rows 21, 22, 23 and 24: Miracles at the shrine.

It is significant that, using the sequence suggested here, all the panels from William's enthronement in panel 4c through to the extreme unction in 9e are in the exact position in which they were seen by Torre, except for the last two which are interchanged (see the window diagrams in appendix 2). Because of this apparent accuracy in the lower panels, Torre's positioning has been followed as closely as possible in the later and less specific miracle sections.

Although generally more satisfactory, this scheme creates some peculiar problems with the lowest row, filled with five representations of various members of the Roos family. The six male members of the family are depicted in four panels, the baron and his next of kin paired with their wives and the four youngest sons grouped in two pairs. The fifth panel shows a woman alone but for her pet dog. The identity of the figures is made clear in most cases by the heraldry displayed on the surcoats and cloaks. The four younger sons bear the arms of the Roos family (three water budgets on a red background) each with a distinct mark of difference. At one time the lone woman clearly bore the Roos arms impaled by Stafford, and therefore she must be Beatrice, the mother of Baron William.[20] A full description and analysis of these figures can be seen in French's article, and does not need to be repeated.[21] However, more can be said when we consider the background glass.

In Torre's time most of the donor panels were scattered in the second row. The original order of the panels can be guessed from the small amount of coloured rinceaux showing behind the tapestries serving as backdrops to the figures. The originality of this glass is confirmed in each case by late nineteenth-century photographs taken during the re-leading and now in the Minster Library, York. Three of the panels have blue backgrounds, including that containing lady Beatrice, and therefore must occupy either the first (la), centre (1c) or rightmost (le) positions. Beatrice's image was probably in le. She was seen there both by Torre and, in 1670, by the antiquarian Henry Johnson.[22] Her arms were also seen painted on the shield carved beneath that light.[23] The position is the one of honour, and thus appropriate for the matriarch of the family. The other two blue panels are the two pairs of younger sons. If put in order of age, the two youngest would take the far left position (la) and the next oldest the central space (1c). Of the two red panels, that showing the Baron with his wife (plate 6) may be assumed to take the right of the two remaining positions (ld), which leaves the figure of the heir with his wife in lb. This results in the second and third sons occupying a position to the right of the oldest, but this discrepancy cannot be avoided without ruining all hope of a pattern in the background colours in this row. The above scheme is now in place in the Minster, except for panels lb and lc being reversed (and thus putting the first son ahead of the others but destroying the colour pattern).

It has usually been assumed that the donor of the window was Baron William or John.[24] The red backgrounds of both the Baron and heir panels makes it difficult, however, to place them in the prominent places of the centre or right lights. In view of her reported position in the panel closest to the shrine and altar and in front of the others, and the fact that she is the only solitary figure in the row (if one forgets the pet dog), the donor is more likely to have been Beatrice. A more symmetrical order could be devised if she was in the central light, with

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[20] French, opcit. in n. 1, p. 178.

[21] Ibid., pp. 175-80.

[22] Ibid., p. 177.

[23] Ibid., p. 177.

[24] Fowler, op.cit. in n. 2, pp. 212-18. See also Knowles and French.

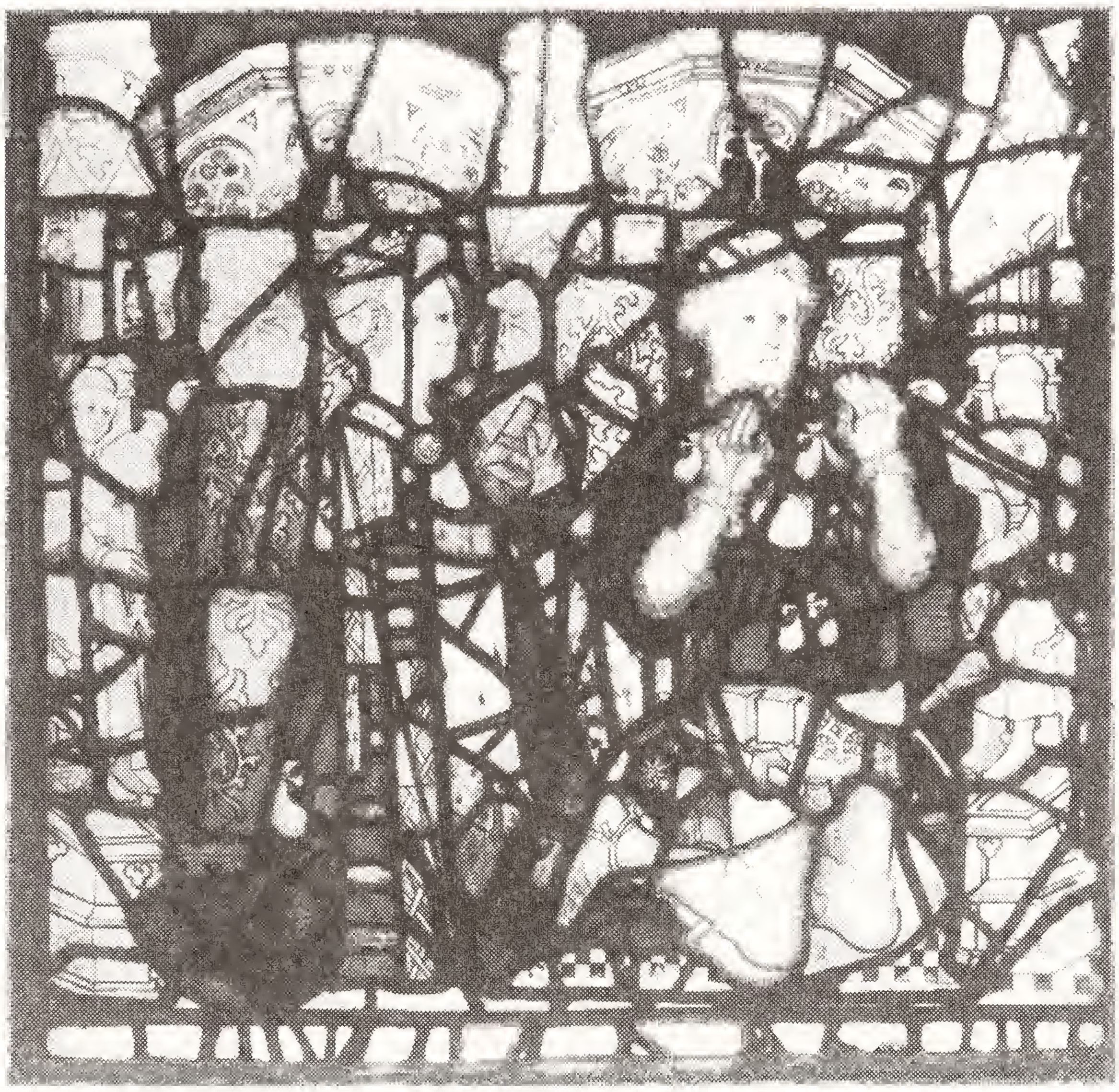

Plate 6. Panel 1c. William Roos and Margery Despencer.
Photo: RCHME. © Crown Copyright.

William and John on either side and the younger sons at the extremities, but this would have to ignore the earlier sightings. It is also possible that she was not the donor but placed in the position of honour by her son.

The reconstruction of the St William window as presented in this paper has several remaining problems. It fails to create a perfect chequerboard due to the two consecutive rows in the blue sequence occurring at both the top and bottom of the window. The colour of the top row is not as serious, since the position of the miracle panels is less certain than in the narrative sections. The extra blue row at the bottom is more problematic, and to suppose that the donor panels were not meant to fit the chequer sequence seems unsatisfactory, but it is quite possible that the extra blue-sequence rows at the top and bottom were intentional. The reconstruction causes a loss of symmetry because the St William Window would no longer complement the banded pattern of the St Cuthbert Window on the other side of the choir. However, the colour scheme is submerged in the riot of colour which the two windows present, and is not easily discernible. Even if it was, it is not certain that glaziers placed any weight on the symmetry of the two windows, especially since they were not glazed as part of the same project.

Despite these minor difffculties the suggested sequence has many advantages. It accounts for the numbers of red and blue panels without resorting to any change of background colour and copes with the position of open and closed frames. It also resolves the problems posed by earlier panel interpretations that, on restoration and closer examination, have been found to be incorrect. The iconographic scheme is made clearer and is more systematic. Perhaps most importantly, it differs in very few respects from the state of the window as seen by James Torre.

APPENDIX 1:

Panel Interpretation

The following list of the scenes depicted in the panels of the St. William Window is given to clarify the subject titles given in the diagrams of appendix 2 and to supply a guide to the present and past position of particular panels. They are listed in their present order using the Corpus Vitrearum numbering system, with Fowler's designations (which were also used by Knowles) supplied for convenience in the form F1, F2 etc. Where the standard interpretation of the subject as given by Fowler is without doubt the subject is simply summarised. Where Knowles has given a re-evaluation I have placed it after his name without Fowler's interpretation, since I have followed Knowles in every case unless I have replaced it with an opinion of my own. Fowler's and Knowles' full descriptions and arguments are not included, since they are lengthy and can be found in their respective works. Occasionally I have put forward my own interpretation, in which case the title is given in boldface followed by an argument in justification.

C.V	Fowler	Subject
1a	F.7	Fourth and fifth (and therefore youngest) sons of William, sixth baron Roos.
1b	F.9	The second and third oldest sons of William Roos.
1c	F.10	The Baron Roos, with his wife Margery. (plate 6)
1d	F.8	John Roos as heir (Bearing the Roos arms with a label of three points) with his wife, also named Margery.
1e	F.2	Beatrice Roos nee Stafford, wife of Thomas the fourth baron Roos, mother of William and Grandmother of John. **The Probable Donor.** The only single Roos figure and in the rightmost position. See text.
2a	F.10	Knowles: Wiliiam nominated as archbishop.
2b	F.10	Knowles: William's enemies seal letters. **The Election of St. William.** The scene is a group of canons sealing one letter. The circular arrangement of the seating, however, suggests a chapter house. It is hard to imagine that William's election would have been left out of his window, and this panel fits that subject well.
2c	F.1	Fragments described by Knowles as the Birth of William, now replaced by a panel from the South Transept. There is a photograph of the highly damaged original panel in the Minster Library at York, but it is not positively identifiable. According to Lazenby it was eventually moved to window sIV, panel 1c. The panel presently there, however, does not resemble a birth scene.
2d	F.17	Baptism of William.
2e	F.5	Fragments now replaced by a panel from St. Stephen's Chapel called the Marriage of William's parents. **The accused woman's hand survives the ordeal by red-hot iron.** This is the only one of the three replacement panels that is likely to have actually come from this window. In the presence of onlookers a woman presents her hand palm upwards to a seated man with a beard. The subject is part of that wrongly described by Fowler for panels 24a, 24b and 24c (F.103, F.104 and F.105). The elderly judge bears a marked resemblance to the judge in the Ralph and Besing panels, especially 12b.
3a	F.11	Enemies appeal to Innocent. Knowles' proposal that this is the results of the election of Henry Murdac and Hilary of Chichester being presented to

		Eugenius is equally possible, and is only rejected because it does not fit into the narrative sequence in this position.
3b	F.12	Knowles: Adversaries of William meet. The circular arrangement of the seating suggests a chapter house, as in 2b (see plate 7). The presence of the pallium is troubling, but Knowles asserts that it was once dark and therefore originally a clerical vestment called a tippet. If the pallium is original then this could be William conducting some form of business at York as archbishop, which would tidy-up the themes of rows 3 and 4.
3c	F.13	Pope Innocent allows conditional consecration.
3d	F.14	St. William conducted to his stall as canon.
3e	F.16	St. William enthroned. The pallium is anachronistic because William did not properly receive one until after Murdac's death.[25] This anachronism occurs in several other panels. Although the attainment of the pallium is a major theme of the window, the special vestment had to be shown in many cases to distinguish William and Henry Murdac from mere bishops. Chronological accuracy appears to have been sacrificed for iconographic clarity.
4a	F.18	Knowles: William swears to protect the rights of the church. **William swears the oath set by Innocent as the condition of his consecration.** The panel depicts an archbishop taking an oath, with no other clues. The oath which temporarily cleared him of the charge of simony was a much more important event than the other, more routine act, and more in keeping with the narrative of the window.
4b	F.15	William refused the pallium by Celestine. Innocent **II receives the results of the election.** This is definitely a pope receiving a letter, and therefore cannot be the subject assumed by Fowler. In addition, the reign of Celestine had very little impact on William's life. Although the possibilities for this panel are many, I have chosen the above interpretation because it fits into the narrative sequence. It also makes sense of the letter being sealed at the election scene.
4c	F.19	Knowles: The death of Lucius.
4d	F.4	Lucius gives the pallium to the papal legate, Hincmar.
4e	F.20	Pallium recalled by Eugenius. **Hincmar carries the Pallium to Britain.** Because this panel merely shows Hincmar riding there is no reason to assume that he is actually being recalled.
5a	F.30	Pope Eugenius deposes William at the Council of Rheims.
5b	F.22	Eugenius decrees a substitute. **Murdac presents his case.** The figure of the pope is clearly receiving a letter, not sending one, as can be seen from the position of the hands. Only one figure, in the habit of a Cistercian, is kneeling to the pope. In the background are other figures, perhaps bystanders in the papal court.
5c	F.25	Knowles: The consecration of Murdac by Eugenius. **Eugenius crowned as Pope.** (plate 8). Knowles notes that "The cardinal on the left appears to be reaching up and placing something on the head of the Archbishop."[26] In fact the object is a papal tiara. It is very strange that the main figure in this panel has both a pallium and a triple crown. The presence of the cardinals makes it slightly more likely that the pope is depicted than the consecration of Murdac, which was performed by Eugenius himself. Popes did wear

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[25] Knowles 1934, p. 22.

[26] Ibid., p. 28.

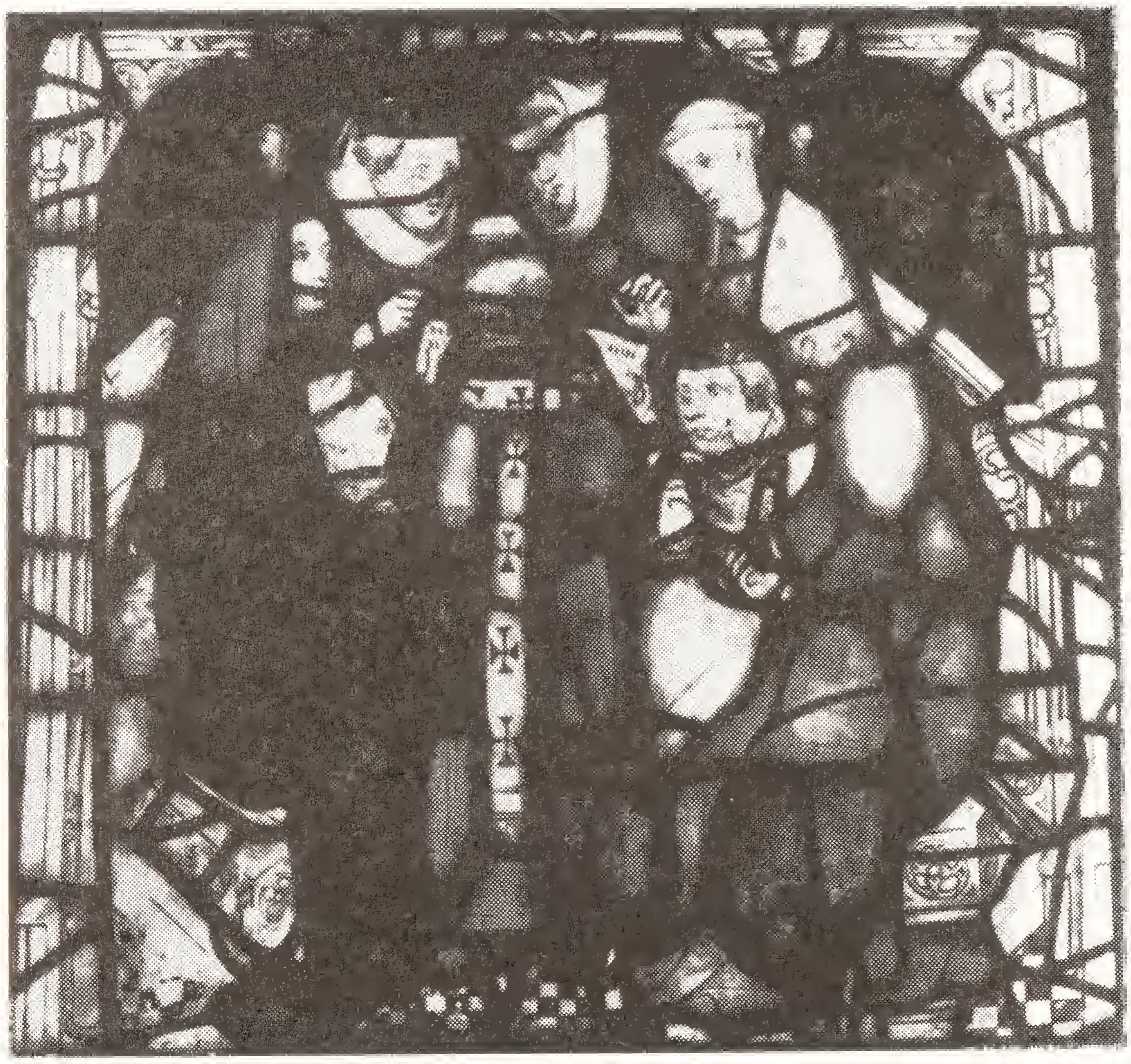

Plate 7. Panel 3b. The adversaries of William meet.
Photo: Dean and Chapter of York.

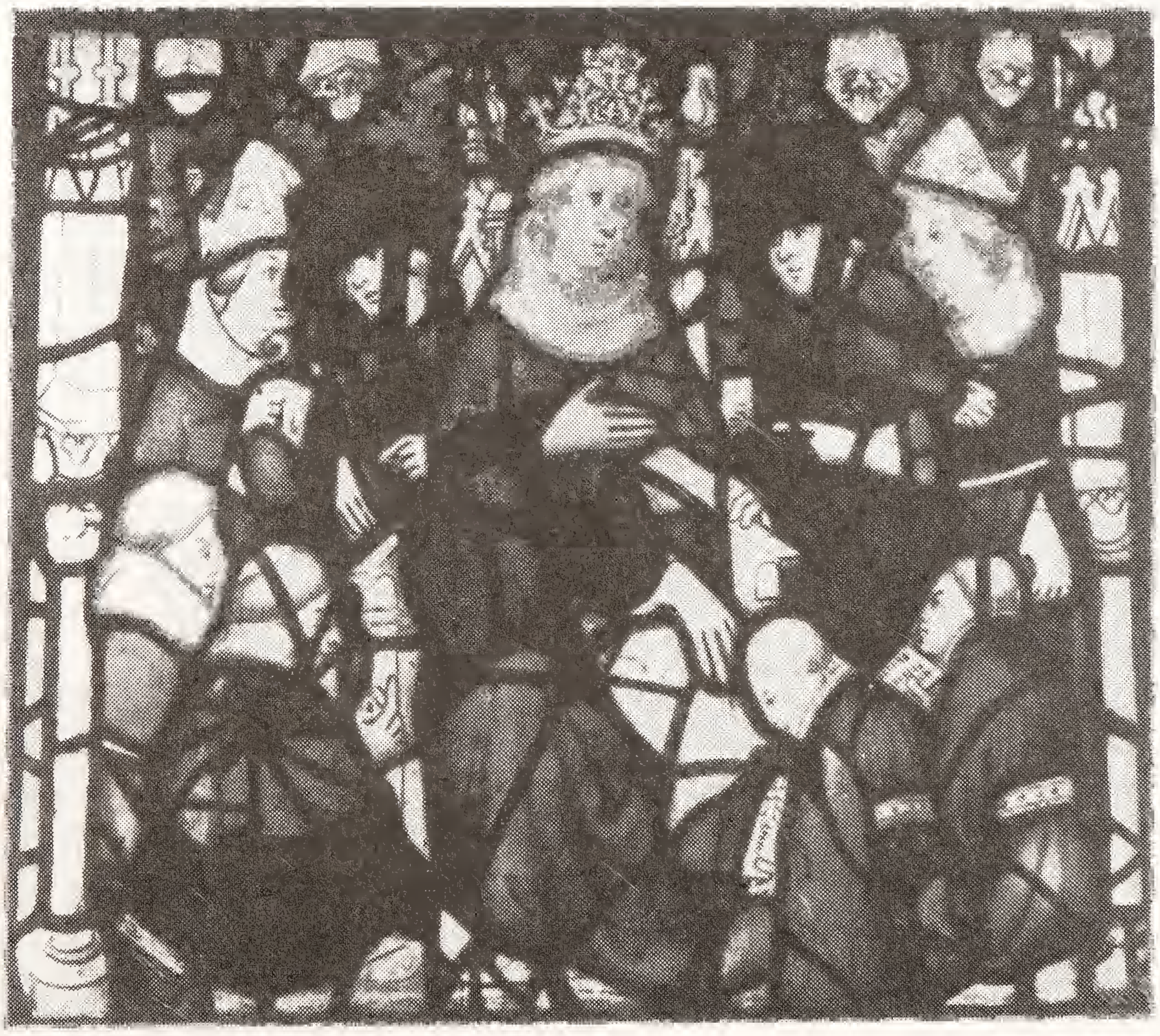

Plate 8. Panel 5c. The Crowning of Pope Eugenius.
Photo: Dean and Chapter of York.

		palliums, and his might be depicted worn over his many other vestments. Otherwise the pallium is a later insertion. A large portion of it does actually appear to be painted in a non-medieval hand, being very light in hue compared to the strong strokes usually seen on the palliums in this window.
5d	F.24	Murdac enthroned. He is portrayed in place at York, not during the actual enthronization ceremony. It is doubtful whether the fifteenth-century canons would have wanted to portray Murdac in exile, as Knowles suggests, since that was an incident which it was in their interest to forget. Murdac is not portrayed as a villainous opponent to William but, not surprisingly, as another respectable and properly elected archbishop.
	Row 6:	Canopies.
7a	F.21	Knowles: Marriage of William's parents.
7b	F.27	Knowles: William introduced to King Stephen. Knowles only tentatively identified this panel as King Stephen rather than the King of Sicily, but its position as described by Torre suggests that he was correct. However, it is not William receiving the temporalities at Lincoln but a later meeting. It might be objected that because William is not in full archiepiscopal dress this must be the earlier occasion, but he is not wearing his full pontificals in many of the other, later scenes. In particular 6c, illustrating his arrival at the Minster, is very similar.
7c	F.23	William anointed by the Holy Ghost. **William, by means of the Holy Ghost, is told of his imminent reinstatement** (plate 3). This is not a direct copy of a similar miracle performed for John of Beverley as has been assumed. William received this prophecy by means of the Holy Spirit before he was given the spurs by Henry of Winchester, so he already knew the meaning of the gift. For the thirteenth-century source see "The Anonymous Life of St. William. [27]
7d	F.29	William in exile visited by many. This portrays the fame of the young saint's holy life, which attracted many visitors whom he tried to avoid.
7e	F.31	William receives the prophetic gift of golden spurs.
8a	F.28	William's opponents die on the same day. In fact they died several months apart, but legend exaggerated the proximity. Note: Knowles is quite correct in that all three (Murdac, Eugenius and Bernard) are depicted.
8b	F.34	William goes to Rome.
8c	F.33	William receives the pallium from Anastasius.
8d	F.32	William returns from Rome by sea.
8e	F.35	Knowles: Roger, Archdeacon of Canterbury, meets William.
9a	F.38	Knowles: The saint on his return met by the corporation at Dringhouses.
9b	F.37	The populace of York meets William at the city gates.
9c	F.36	The miracle at Ousebridge.
9d	F.39	William receives the archiepiscopal cross.
9e	F.40	The enthronement at York.
10a	F.45	William holds a feast for his friends.
10b	F.49	Trinity Sunday mass.
10c.	F.42	Knowles: The death of St. William.
10d	F.43	William dying. **Extreme unction** (plate 9). Knowles' suggestion that the death of Murdac is portrayed twice is unlikely. The Cistercian monks about the bedside probably represent the reconciliation William made with them before his death. One of the figures is placing his finger to the dying

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[27] J. Raine, *The historians of the Church of York and its Archbishops* (London: Rolls Series, 1879-94), vol. II, pp.273-4.

		bishop's eye, suggesting unction.
10e	F.44	William lying in state (plate 10). **William's body undamaged after a fire in the Minster.** The flames apparently protruding from William's body make it obvious that this is the miracle that occurred shortly after the saint's death, wherein his tomb was broken open by flaming beams but his body and silk robe were unharmed by the embers flung upon them.
11a	F.46	The saint is buried.
11b	F.71	Knowles: Drowned boy on bank.
11c	F.65	William stills a storm at sea and saves merchants.
11d	F.46	A woman carried in a cart to the Minster.
11e	F.50	A dropsical woman at the shrine.
12a	F.51	Knowles: Ralph gets new eyes (plate 4).
12b	F.52	Ralph and Besing swear oaths.
12c	F.53	Ralph and Besing fight.
12d	F.54	Ralph bereft of an eye by Besing.
12e	F.55	Knowles: Ralph praying at William's tomb for new eyes (plate 5).
Row 13: Canopies.		
Row 14: Clear glass.		
15a	F.61	A scholar taken by a devil.
15b	F.63	A woman receives sight through a vision of St. William.
15c	F.62	Knowles: A scenes of general cures at the shrine.
15d	F.64	A man swallows mortar. **The man who found a miraculous rose at the tomb, dipped a leaf of it in the oil, ate it, and was cured.** Since the man who took the mortar from the tomb did not eat it and was not ill himself he could not be the figure portrayed in this panel, who is clearly eating something and reclining before the tomb.
15e	F.86	Knowles: Men saved from hanging.
16a	F.48	Knowles: Oil exudes from the tomb.
16b	F.74	Knowles: A drowned boy is restored.
16c	F.72	A man falls from a horse.
16d	F.66	A woman eats a frog cooked in bread.
16e	F.67	The same woman cured.
17a	F.69	A deformed man/boy carried to the shrine.
17b	F.77	A paralytic at the shrine.
17c	F.98	A deaf woman at the shrine. Note: She also has a hunched back.
17d	F.97	A man on crutches at the shrine. The same man appears in the panel twice, before and after cure.
17e	F.75	A woman with contracted arms. **A woman afflicted with leprosy** (plate 2). More probable, because of the yellow spots and deformed nose, than Fowler's panel F.100 (22e).
18a	F.3	Fragments now replaced by an alien window.
18b	F.76	Edward I invited to the translation.
18c	F.78	King Edward falls.
18d	F.79	King Edward gives thanks for his cure.
18e	F.80	King Edward travels to York.
Row 19: Canopies.		
20a	F.83	Bishops sing before the translation. **Bishops gathered after the translation.** Since the bishops have closed mouths it is unlikely that they are singing. The meaning of this panel is mysterious, but could as easily be bishops gathered after as before the translation. Another possibility is that this panel portrays the beatified William in heaven with the many other saintly bishops of the diocese. Such a scene would be appropriate at this point in

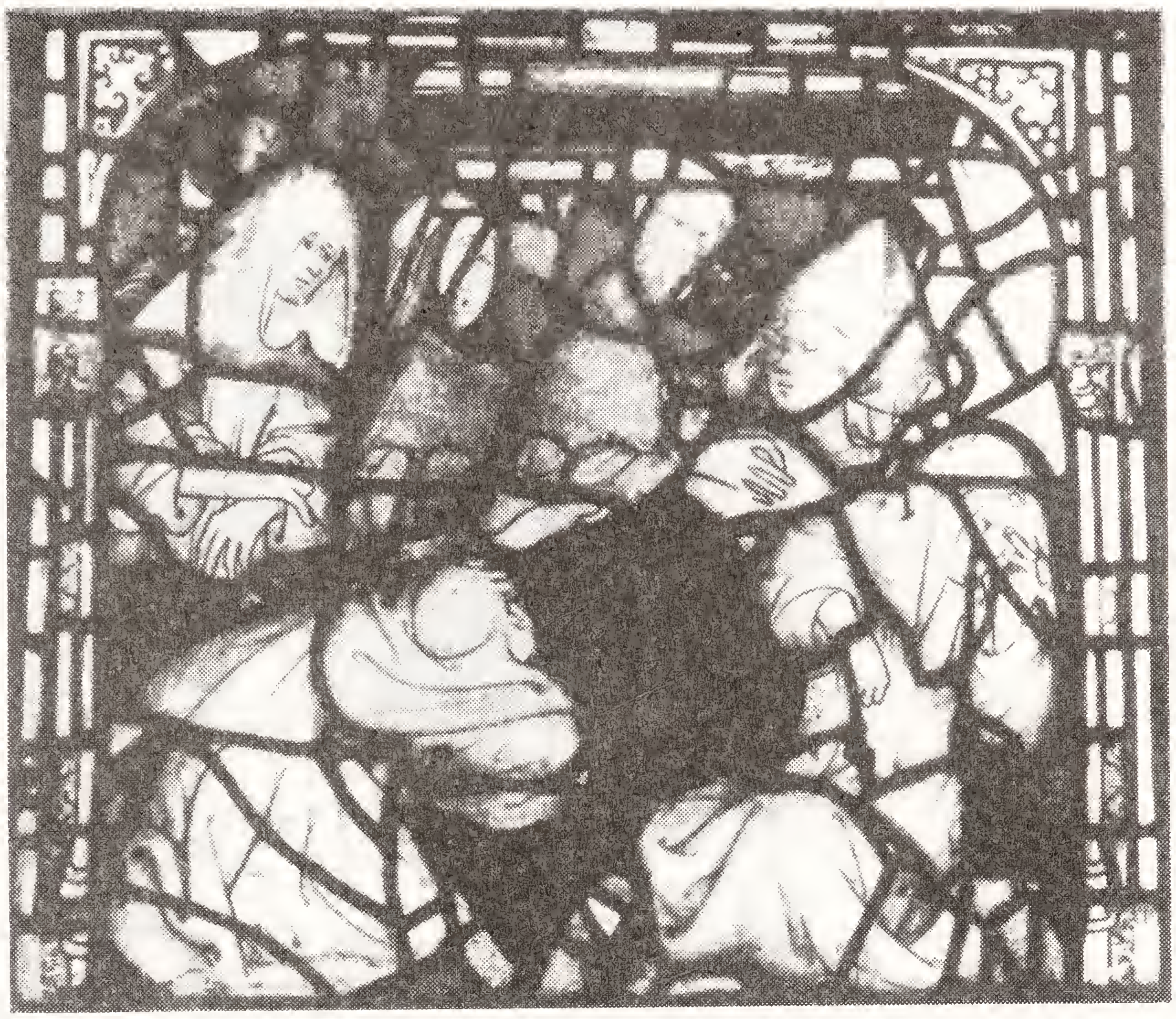


Plate 9. Panel 10d. William receives the sacrament of extreme unction.
Photo: Dean and Chapter of York.

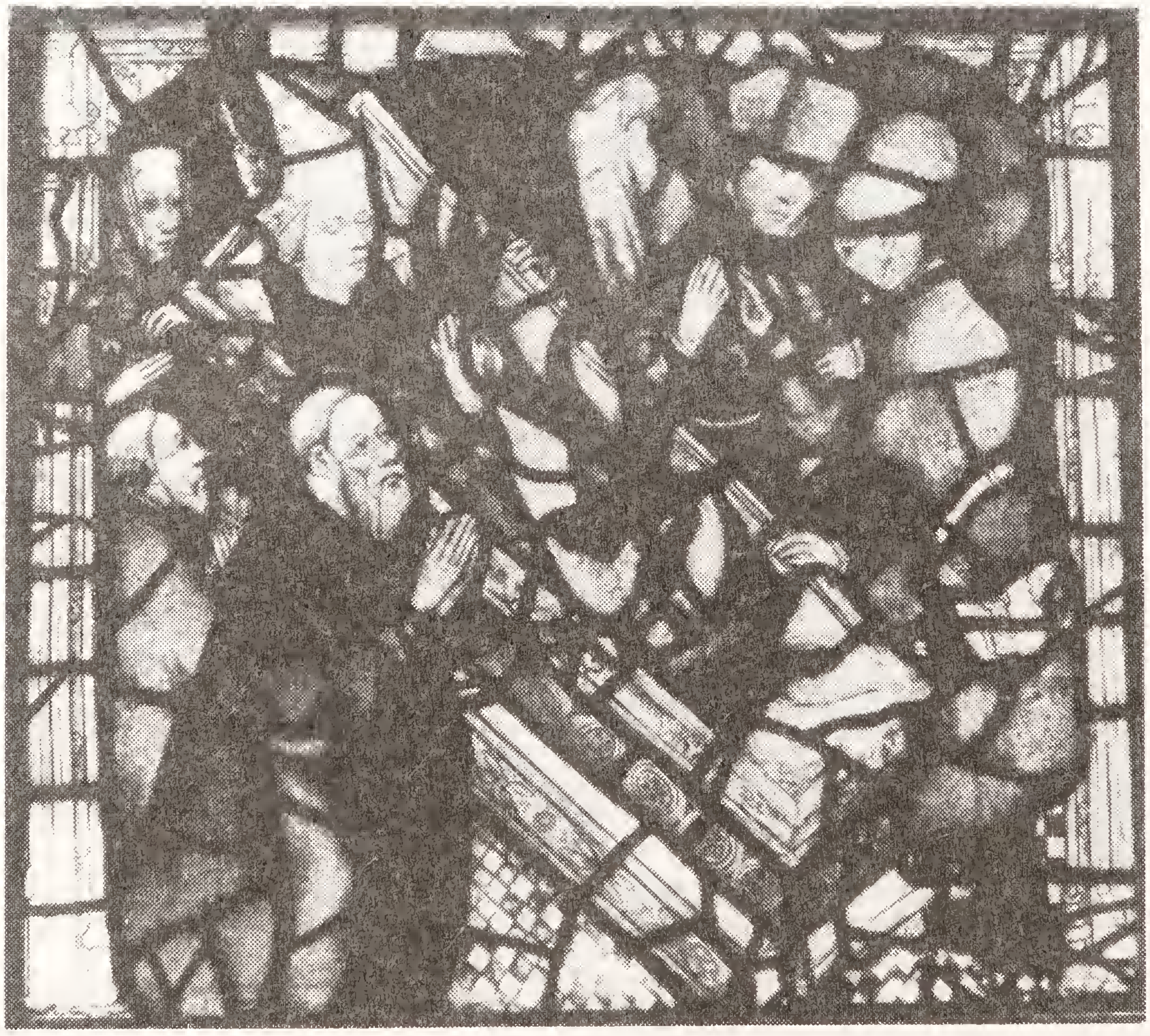
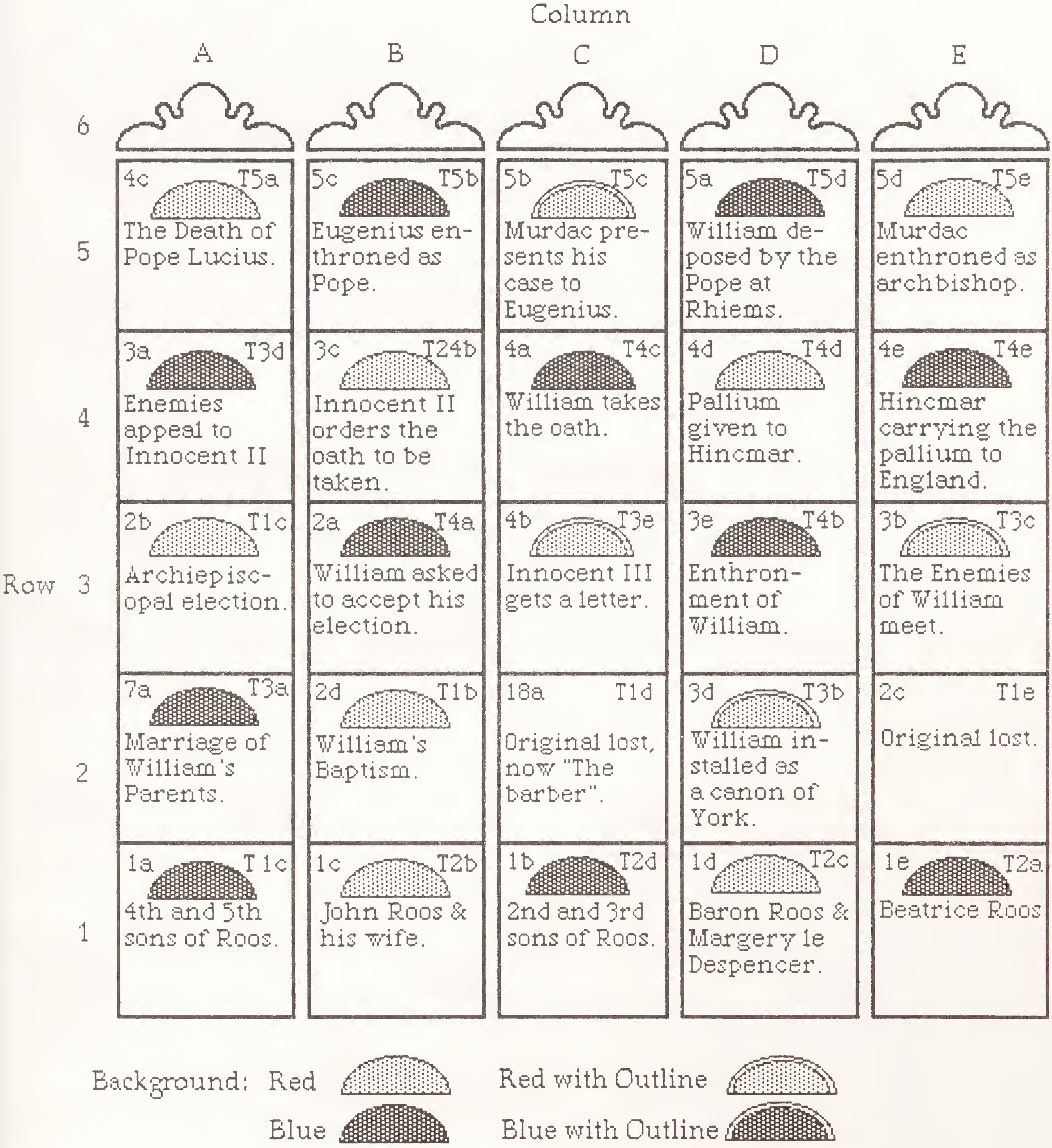


Plate 10. Panel 10e William's body undamaged by fire.
Photo: Dean and Chapter of York

		the window and would correspond to other groups of the famous archbishops of York both in the tracery of this window and in the West Window.
20b	F.85	The coffin is opened for the translation.
20c	F.82	A man sleeping during the translation is hit by a stone.
20d	F.81	The same man is unharmed.
20e	F.84	The translation of William's relics.
21a	F.70	A child is drowned in the Ouse.
21b	F.99	Another drowned child at the shrine. **A child at the shrine.** There is no particular reason to assume that this child is one of those drowned, especially since the drowned child is shown at the tomb in 21e. It could just as well be any other infirmity, and therefore can fit in well with the other generalised scenes in this row.
21c	F.73	A cripple before the feretory. Note: The cripple is shown approaching the tomb on the left and healed on the right.
21d	F.47	Knowles: William smitten with fever (plate 1).
21e	F.68	Knowles: The drowned child recovers at the tomb.
22a	F.90	A lame man's leg is measured for a candle.
22b	F.87	A healed man offers a wax replica of his leg at the shrine.
22c	F.88	The Ousebridge breaks as the feretory is carried over.
22d	F.89	A boy cured on return of the feretory. **Those who fell from the bridge are saved.** The kneeling figure appears to be the same woman who fell into the Ouse from the broken bridge giving thanks as the feretory passes, therefore this is probably a sequel to 22c.
22e	F.100	A woman with leprosy. **A diseased woman at the shrine.** The woman afflicted with leprosy is more likely 17e. The woman in this panel has black spots, perhaps intended to represent bubonic plague.
23a	F.96	A victim of Dropsy approaches the shrine.
23b	F.93	A man putting up a tapestry.
23c	F.94	The same man is knocked down by a falling stone.
23d	F.95	He carries the stone before the feretory.
23e	F.101	A dropsical woman at the shrine.
24a	F.103	Knowles: A crippled woman walking on trestles is cured.
24b	F.104	Knowles: A noblewoman is knocked down by a horse.
24c	F.105	Knowles: The same woman gives thanks at the shrine.
24d	F.92	A man in fetters.
24e	F.91	The same man, released, offers his fetters.

Appendix 2: The panels re-ordered



Column

Row	A	B	C	D	E
6					
5	4c T5a The Death of Pope Lucius.	5c T5b Eugenius enthroned as Pope.	5b T5c Murdac presents his case to Eugenius.	5a T5d William deposed by the Pope at Rhiems.	5d T5e Murdac enthroned as archbishop.
4	3a T3d Enemies appeal to Innocent II	3c T24b Innocent II orders the oath to be taken.	4a T4c William takes the oath.	4d T4d Pallium given to Hincmar.	4e T4e Hincmar carrying the pallium to England.
3	2b T1c Archiepiscopal election.	2a T4a William asked to accept his election.	4b T3e Innocent III gets a letter.	3e T4b Enthronment of William.	3b T3c The Enemies of William meet.
2	7a T3a Marriage of William's Parents.	2d T1b William's Baptism.	18a T1d Original lost, now "The barber".	3d T3b William installed as a canon of York.	2c T1e Original lost.
1	1a T 1c 4th and 5th sons of Roos.	1c T2b John Roos & his wife.	1b T2d 2nd and 3rd sons of Roos.	1d T2c Baron Roos & Margery le Despencer.	1e T2a Beatrice Roos

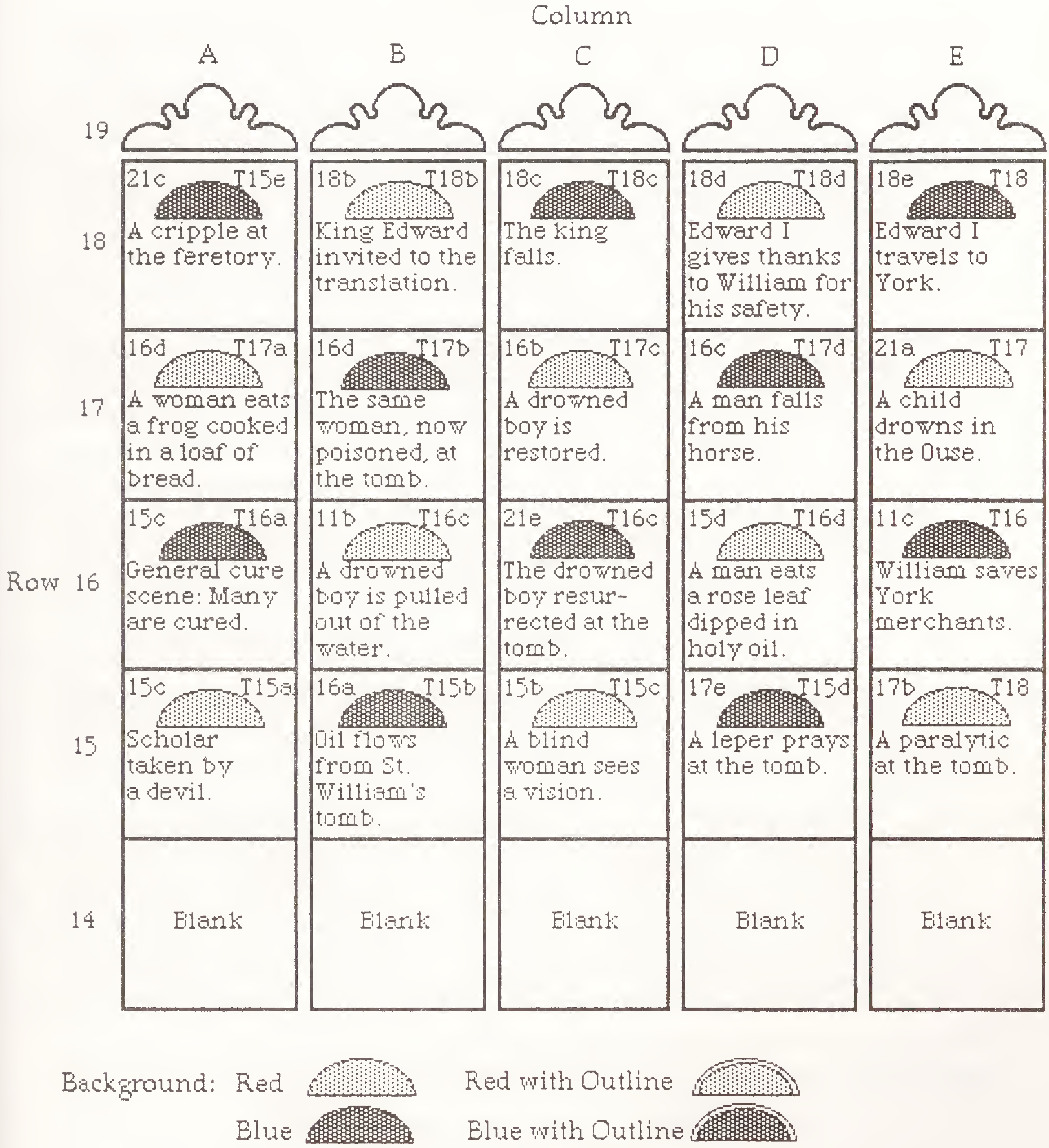
Background: Red Red with Outline

Blue Blue with Outline

Row	Column A	B	C	D	E
13					
12	12b T12a ○ Ralph and Besing swear oaths.	12c T12b ● Ralph and Besing fight a judicial duel.	12d T12c ○ Ralph bereft of both his eyes.	12e T12d ● Ralph prays at the tomb of St. William.	12a T12e ○ Ralph gets two new eyes.
11	11a T11a ● William's burial.	10d T11b ○ William's body unharmed by embers.	2e T11d ● A woman passes the ordeal by fire.	11d T11d ○ A woman carried in a cart.	11e T11 ● A dropsical woman at the tomb.
10	10a T10a ○ William performs mass on Trinity Sunday.	10e T10b ● Feast held by William for his friends.	21d T10c ○ In a poisoned fever, William predicts his own death.	10c T10e ● William dying.	10b T10 ○ William receives the last rites.
9	9a T9a ● William met by the corporation of York.	9b T9b ○ William at the city gates of York	9c T9c ● The miracle on the bridge	9d T9d ○ William receives the archiepiscopal staff.	9e T9e ● William enthroned at York Minster
8	8b T8a ◎ William rides to Rome.	8c T8b ● The pallium is given to William by the Pope.	8b T8c ○ William returns to England by sea.	8e T8d ● William meets Roger of Canterbury.	7b T8e ○ William introduced to King Stephen.
7	5e T7a ● William received in Sicily.	6d T7b ○ William visited by many while in Sicily.	8a T7c ● All three of William's enemies die the same day.	6c T7d ◎ William enlightened by the Holy Ghost.	6e T7e ● The gift of golden spurs.

Background: Red ○ Red with Outline ◎

Blue ● Blue with Outline ◉

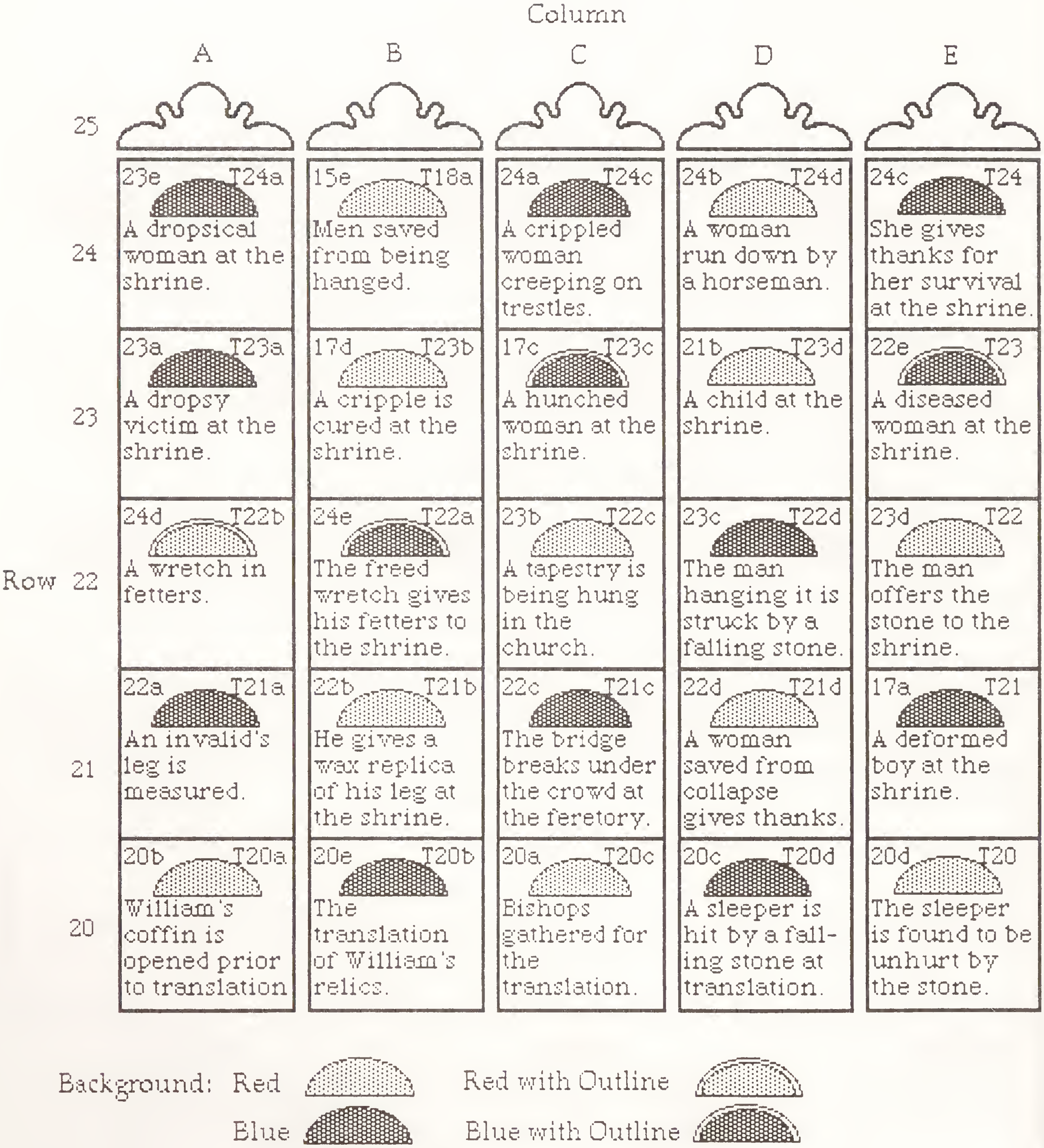


Column

Row	A	B	C	D	E
19					
18	21c T15e A cripple at the feretory.	18b T18b King Edward invited to the translation.	18c T18c The king falls.	18d T18d Edward I gives thanks to William for his safety.	18e T18 Edward I travels to York.
17	16d T17a A woman eats a frog cooked in a loaf of bread.	16d T17b The same woman, now poisoned, at the tomb.	16b T17c A drowned boy is restored.	16c T17d A man falls from his horse.	21a T17 A child drowns in the Ouse.
16	15c T16a General cure scene: Many are cured.	11b T16c A drowned boy is pulled out of the water.	21e T16c The drowned boy resurrected at the tomb.	15d T16d A man eats a rose leaf dipped in holy oil.	11c T16 William saves York merchants.
15	15c T15a Scholar taken by a devil.	16a T15b Oil flows from St. William's tomb.	15b T15c A blind woman sees a vision.	17e T15d A leper prays at the tomb.	17b T18 A paralytic at the tomb.
14	Blank	Blank	Blank	Blank	Blank

Background: Red ▨ Red with Outline ▨

Blue ■ Blue with Outline ■



Row	A	B	C	D	E
24	23e T24a A dropsical woman at the shrine.	15e T18a Men saved from being hanged.	24a T24c A crippled woman creeping on trestles.	24b T24d A woman run down by a horseman.	24c T24 She gives thanks for her survival at the shrine.
23	23a T23a A dropsy victim at the shrine.	17d T23b A cripple is cured at the shrine.	17c T23c A hunched woman at the shrine.	21b T23d A child at the shrine.	22e T23 A diseased woman at the shrine.
22	24d T22b A wretch in fetters.	24e T22a The freed wretch gives his fetters to the shrine.	23b T22c A tapestry is being hung in the church.	23c T22d The man hanging it is struck by a falling stone.	23d T22 The man offers the stone to the shrine.
21	22a T21a An invalid's leg is measured.	22b T21b He gives a wax replica of his leg at the shrine.	22c T21c The bridge breaks under the crowd at the feretory.	22d T21d A woman saved from collapse gives thanks.	17a T21 A deformed boy at the shrine.
20	20b T20a William's coffin is opened prior to translation	20e T20b The translation of William's relics.	20a T20c Bishops gathered for the translation.	20c T20d A sleeper is hit by a falling stone at translation.	20d T20 The sleeper is found to be unhurt by the stone.

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SIR JOHN SAVILE, STEWARD OF WAKEFIELD 1482, d. 1505

by Hilary Wayment

The Savile Chapel in the North Aisle of Thornhill Church contains a wooden altar tomb with three effigies generally identified as those of Sir John Savile, who died in 1505, and his two wives Alice (Vernon), who died in 1493, and Elizabeth (Paston), who was a second cousin of King Henry VII. Sir John's head has a gaunt impersonal look, and is obviously far from being a portrait; the epitaph is unusual:

Bonys among stonys lye here ful styl
quilst the sowle wanders whar God wyl.

The tomb, which once had a tester, was set up in 1529, nearly a quarter of a century after Sir John's death, no doubt by his son Henry, who had been only six years old at his father's death.[1] This Sir John had succeeded his grandfather of the same name in June 1482. His father, also named John, had died in or before 1480; for on 26 March of that year he was granted the reversion of the office of Steward of Wakefield and Constable of the Castle of Sandall, on the death or surrender of these titles by his grandfather.[2] He led an active, not to say turbulent life, which has never, I think, been the subject of any longer notice than the short entry devoted to him by J.W. Clay in his notes on the Savile family.[3] His grandfather, in addition to Thornhill, had held the Manors of Elland and Tankersley, and there were also nine 'townships' connected in some way with the Stewardship of Wakefield.

Already, in June 1480, Sir John had been given a commission of array in the West Riding against the 'marauding scots'[4], and in February 1484 Richard III, under threat of invasion by Henry Richmond, made him a grant for life as 'Lieutenant or Captain of the Isle of Wight';[5] he also became Commissioner of the Peace for the County of Southampton in the year 1484/5.[6]

He must have rallied to Henry immediately after the battle of Bosworth, for he was Commissioner of the Peace for the West Riding in the same year, and the Act of Resumption confirmed him in the Stewardship of Wakefield.[7] In March 1486 he accompanied Henry to York on the King's first progress after the Coronation and in 1487 is described as 'Banerett' and 'Knight for the King's body'.[8] On 1 November 1494 he was present at the creation of Prince Henry as Duke of York (one of 150 men named); this was followed by tourneys on 9, 11 and 13 November.[9] On 10 November 1501 he attended on Henry (with 54 others) to meet Katherine of Aragon.[10]

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[1] Savile and Suttill the arms of indicate Henry's responsibility (he married a Suttill). See Roger Dodsworth, *Yorkshire Church Notes,* ed. J.W.Clay, Y.A.S. Record Series XXXIV (1904) p.67.

[2] CPR Ed. IV and V, Ric. III p.193.

[3] *Y.A.J.* XXV (1920) pp. 9-11.

[4] CPR Ed. IV and V, Ric. III p.214.

[5] *Ibid.* p.410.

[6] *Ibid.* p.572.

[7] Rot.Parl. VI 355a.

There was, however, a darker side to Sir John's life. He was not infrequently accused of violence to his neighbours. Such complaints are known to us notably from the proceedings of the Star Chamber, which are fragmentary, often comprising only one party's representations; and the verdict of the court is very rarely known. Richard Wodruf of Wolveley, for instance, complains that Sir John imprisoned three of his servants at Sandall, and would only release them on payment of a fine and nomination of sureties, then later arrested and fined his son-in-law and a tenant.[11] Another complaint, from a certain Thomas Lacy, accuses Sir John of ordering his servant John Savile to use violence and menaces against Lacy's tenants and servants; Sir John simply denies the charge, and suggests that other complaints should be left to local decision by the common law, which was notoriously subject to influence.[12]

He was also involved, like many others, in the acquisition of monastery lands and enclosure of commons. On 2 July 1503 Robert Drax, Prior of the Cluniac Monastery of St. Mary Magdalene of Monk Bretton, near Dewsbury, signs a tripartite indenture granting 'messuages, meadows, tenements, woods, pastures, rents' etc. to Robert Frost, clerk, chancellor of Henry Prince of Wales, and others including Sir John Savile.[13] As early as 1490 there are complaints against him (and other landlords) by tenants of the King's Lordshlps of Sowerby, Warley, Northouram, Hipperholm, Ovenden and Shelf;[14] The last four of these were held by Sir John, and the last two were among a group of the nine 'townships' whose tenure was disputed for half a century or so. Were they, or should they be, held of the King by the Saviles as mean tenants, separately from the Stewardship of Wakefield, or directly by their individual tenants? The 'poor tenants' complained that Sir John had 'pretended a feigned title' to the nine townships 'holden of the Kinge's Lordshippe of Wakefield' and 'took the commons from the tenauntes their dwellynge'.[15] We shall see in due course how this conflict was eventually resolved.

Meanwhile, about the turn of the century, for whatever reason, he had suffered a severe setback by the forfeiture of his Stewardship of Wakefield. An entry in the Patent Rolls on 4 April 1501 describes him as 'late occupier' of the outwoods and the old park within the lordship of Wakefield; another on 15 April speaks of the office of porter of the castle of Sandall 'which John Savile lately had'; and on 16 June 1502 the office of Steward of Wakefield, with its appurtenances, is granted

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8. J. Leland, *Collectanea* IV pp. 185, 231; CPR Henry VII II p.314.
9. BM MS Cotton Julius B xii f.91.
10. L. & P. H VII 1 p.410.
11. Y.A.S. Record Series XLV 1910), *Yorkshire Star Chamber Proceedings* II no. xliii, pp.116-7: no date given.
12. *Ibid.* no.iY p.12.
13. Y.A.S. Record Series LXXXIII (1932) pp.152-3.
14. CPR H VII I pp.325-6.
15. Y.A.S. Record Series LI (1914), *Yorkshire Star Chamber Proceedings* III no.xlvii p.138-40.

'during pleasure' to Sir John Nevill, and passed on to two others in the year following.[16]

Savile was not completely disgraced, however, for his name figures still on the Commission of the Peace at the nominations of 26 February 1501 and 13 March 1502. In November 1501, as we have seen, he was one of those who rode with Prince Henry (then aged nine) to greet Katherine of Aragon. On 8 March 1502 he assisted at a judgement by the Bishop of Carlisle at the Monastery of the Blessed Lady next the walls of York, together with the King's Justice at the assize of York.[17] He had lost his main office, but still had a place in public life.

The Robert Frost who appears to have been the chief beneficiary of the sale of property above mentioned by the monastery of Monk Bretton was a notable administrator and pluralist. He had been rector of Thornhill from 1484 to 1495. In 1491 he built a chapel in the south aisle and glazed its east window, putting in it his own and the Savile arms. In 1499 he set a fine Tree of Jesse in the great east window of the chancel; an inscription dated 1499 describes him as 'late parson of this church'.[18] He was by this time Chancellor of Arthur, Prince of Wales, and continued in the same function after Henry took his place. The Tree of Jesse at Thornhill was restored by Burlison and Grylls c. 1870, and is one of the most splendid examples of 15th-century Anglo-Flemish glazing to survive in a parish church.

In the Savile Chapel, by contrast, the east window, representing the Resurrection of the Just, is sorely damaged and decayed; but what it has lost in splendour it makes up in interest. At the foot of the five lights are five kneeling figures which face southwards towards the chancel; their identity is established by the records of two antiquaries, Roger Dodsworth in the 17th century and T.D. Whitaker in the 19th[19], though recent studies, which do not take account of their evidence, are inaccurate, and the identifications offered in the church itself are incorrect.[20] Dodsworth, on 19 January 1619, transcribes the inscription at the foot of the Window[21] :

Pray for the gude prosperity mercy and grace of Wm Sayvile, one of the Company of Grasin and for the sowlis of sir John Sayvile and dame Alice his wife, fadyr and modyr to the said William. And also for the gude prosperity mercy and grace to sir John Sayvile and dame Alice his wife. The which William Sayvile enlarged this Quire at his cost at the oversight of the sayd sir John hys nevew, wherewith pray we all that God be pleased. The which worke was finished the yeare of 0ur Lord 1493'.

Whitaker adds the vital information that the lady in the second light from the south bears *sable a demi-luce couped or,* the arms of Gascoigne, for the elder Sir John's wife, while the lady in the fourth light bears a fret upon her mantle, from the arms of Vernon, for the younger Sir John's first wife.[22] Thus the figure of the younger Sir John, who was not the donor, but overseer of the work and lord of the manor of Thornhill, is that in the central light of the five (Fig. 1). The fifth figure in the north light wears a murrey robe and represents the unmarried lawyer William Savile, who was also many times nominated in the later part of the century to the Commission of the Peace for the West Riding.[23] The prominence of young Sir John Savile in this window has repercussions far afield from Thornhill, because it establishes the precedent that an organiser or administrator of a building or glazing operation may on occasion set his figure alongside and even before that of the actual donor.

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[16] CPR H VII II pp.243, 277, 303, 347.

[17] *Yorkshire Star Chamber Proceedings* II no.iv p.174.

[18] R. Dodsworth, Yorkshire Church Notes 1619-1631, YAS Record Series XXXIV, ed. J. W. Clay (Worksop 1904) pp.67-8.

[19] T.D. Whitaker, *Loidis and Elmete* (Leeds 1816) pp.319-21

[20] L.S. Jones, 'Saint Michael and all Angels, Thornhill: a catalogue of the medieval glass', B.Phil. thesis, University of York, 1971, prepared under the supervision of P.A. Newton and signed as Reader by R.C. Marks; cf *id., Stained Glass in England during the Middle Ages* (London 1993) p. 82.

[21] see n.18 also *Y.A.J.* VIII (1883-4) p. 488. Details of spelling vary.

[22] Whitaker *loc.cit.;* on the tomb erection in 1529 appear the arms of another group of Vernon families, or on a fess gules three garbs of the first: *but this was 36 years after her death.*

A somewhat similar case occurs at St. Mary's, Fairford, Gloucestershire.[24] This church still retains medieval glass forming a single iconographical scheme in as many as 28 windows, and restorations total no more than 20%. There are no documents even mentioning the glass before 1630; the only method of understanding it is to examine what hard evidence it offers and try to form a coherent picture of its meaning and origin.

The only overt indication of the donor's identity is to be seen in the three windows showing the Apostles with their Creed sentences, which contain between them in their tracery lights five ostrich feathers with *ick dene* (variously spelt), the normal badge of the Prince of Wales (Fig. 2). There are fragments of two more in the battered south-west window. The windows date in all probability from 1501, and the badges refer to Arthur. Their placing and scale corresponds closely with those of the hemp-breakers or brays which are still to be seen in the tracery of a dozen

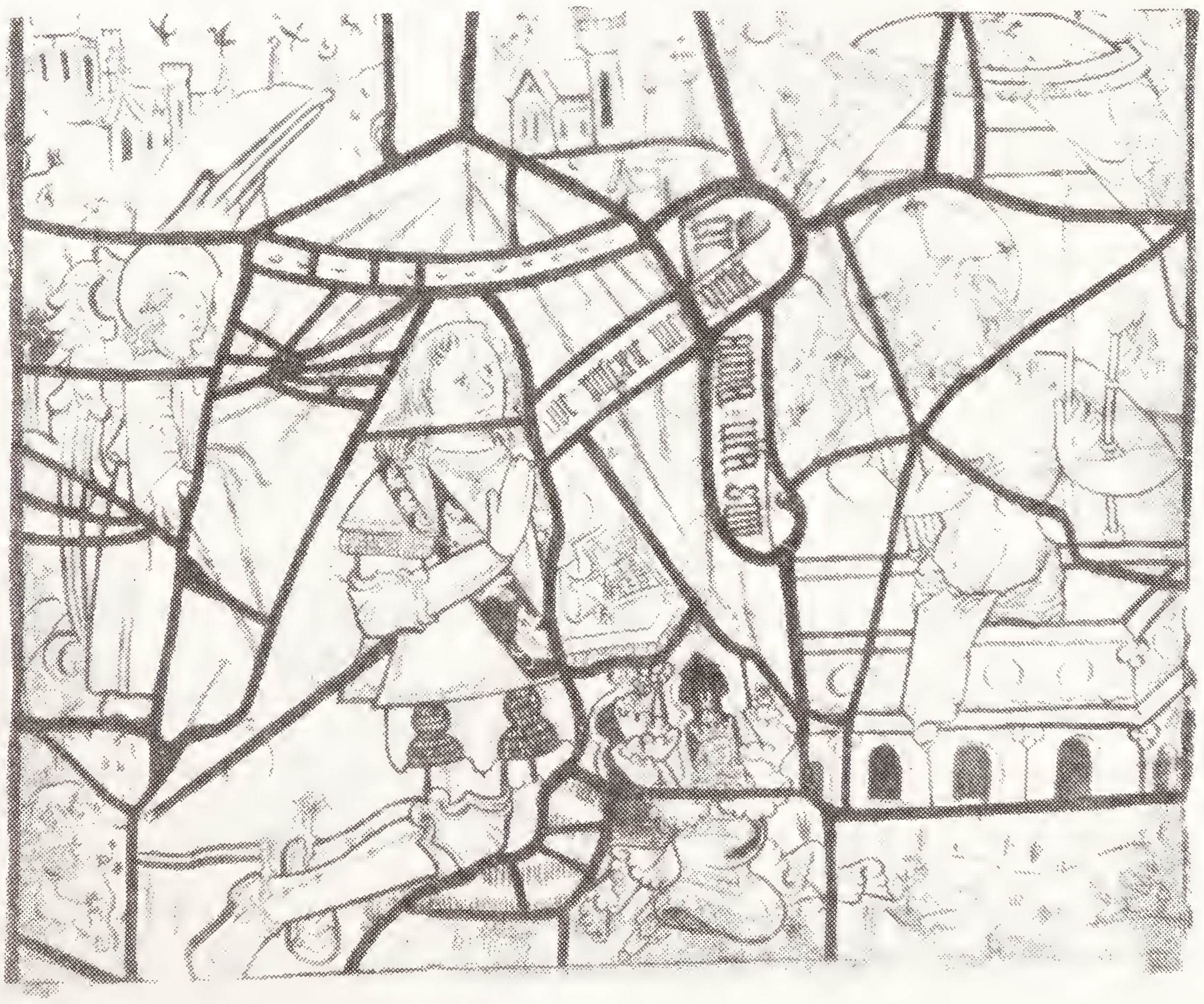

Fig. 1 Sir John Savile: detail from Burlison and Grylls' restoration drawing of East window of Savile Chapel, Thornhill Church, central light: courtesy of Victoria & Albert Museum, London

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[23] Correctly identified by Jones.

[24] H.G. Wayment, *The Stained Glass of St Mary the Virgin, Fairford, Gloucestershire* (London 1984); *id.*, 'Wolsey and Stained Glass' in *Cardinal Wolsey, Church, State and Art,* Ed. S.J. Gunn and P.G. Lindley (Cambridge 1991) pp.1278-30.

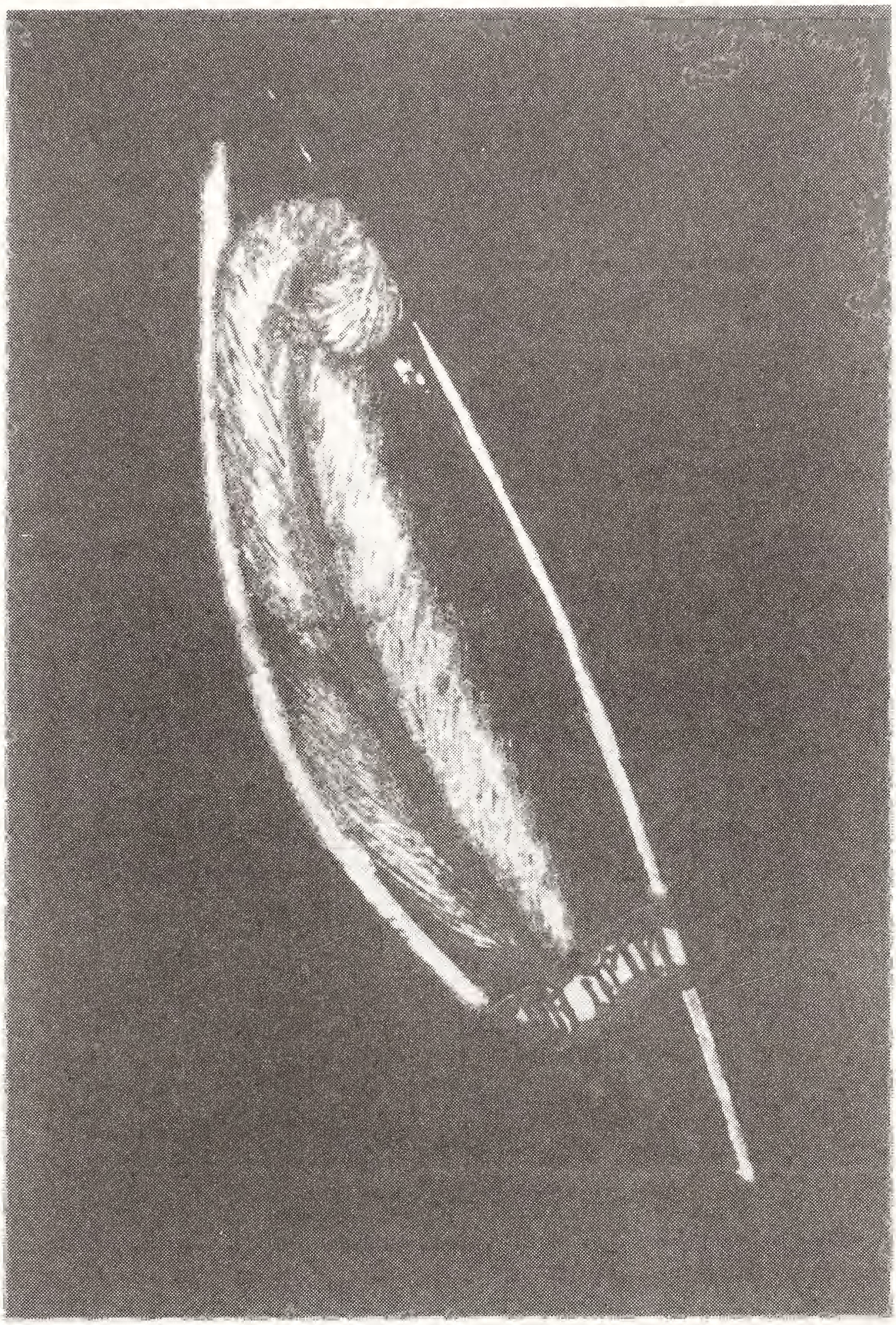

Fig. 2 Ostrich feather with *ick dein* from Apostles' windows, south aisle, Fairford Church.

windows known to have been glazed under a legacy of Sir Reynald Bray in St. George's Chapel, Windsor. Many commentators ignore the importance of the ostrich-feather badges (the late Peter Newton, relentless realist as he was, dismissed them as 'glaziers' doodles')[25] and prefer to fall back on a debatable interpretation of John Leland's remark that 'John Tame began the fair new Church of Fairforde and Edmund Tame finishid it.'[26] But finishing a building does not necessarily include glazing it; and the glass itself contains no sort of confirmation that Edmund Tame had anything to do with it. A quarter of a century later he purchased the manor of Rendcomb and glazed the little church there in a quite different style; the glass has been decimated since then, and extensively restored, but it still retains (in n a 4) one original medallion with ET to show that Edmund Tame was not averse to making his benefactions known.

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[25] Word of mouth 1977. The three Apostles windows were probably completed in haste towards the end of 1501, during Arthur's lifetime.

[26] Oxford Bod.Lib. MS 'The Laborieuse Journey and Serche of Johan Leyland for England's Antiquities' (presented to Henry VIII in 1545) ii f.22v, ed. T. Hearne as *The Itinerary of John Leland* the Antiquary (second ed. Oxford 1744) II p.21.

In the east window at Fairford stands a narrative *Crucifixion* covering all five lights. Apart from the three crucified, with Mary, St. John and Mary Magdalene at their foot, there are half-a-dozen horsemen, including Pilate on the left, the soldier spearing Christ, and another recognising him as the Son of God. In the left-hand corner is a solitary footsoldier staring fixedly at Christ; on his collar can be read IO SꜸELE, and at his belt IVGESANSBESOIGNE, though the second inscription has become illegible during the last twenty years (Fig. 3). Both become immediately intelligible if the footsoldier is seen as the impersonation of a character in the drama by Sir John Savile, who can well be imagined as the 'overseer' of the glazing campaign of the Council of Wales. Gloucestershire, as a border county, appears to have been administered by the Council of which his former rector Robert Frost was Chancellor; and Frost was of course well aware of the role he had played in the building and glazing operation in the Savile Chapel at Thornhill. Moreover, the tag IVGESANSBESOIGNE corresponds exactly with Sir John Savile's situation early in 1501; he had forfeited the stewardship of Wakefield, by virtue of which he had dominated the whole district, but as yet retained his Commission of the Peace, and could therefore rightly describe himself as 'Judge out of a Job'.[27] At the end of 1499 Henry VII, in order to reassure Ferdinand as to the stability of his throne, had executed Edward Plantagenet, Earl of Warwick, on the grounds of his complicity in Perkin Warbeck's plot. The extensive Warwick lands (including Fairford), which had previously been in the King's hands owing to his minority and imprisonment, thereupon reverted finally to the Crown. The glazing of Fairford church could be seen as a celebration of the new ownership and possibly as an expiation of guilt; and Sir John Savile, though deprived of the Stewardship of Wakefield, was not in disgrace at Court, as his attendance on Prince Henry in meeting Katherine of Aragon showed. The early glass at Fairford, including the lives of Mary and of Christ, was probably painted at Westminster in some haste during the course of 1501, and the dual character of the footsoldier's figure at the Crucifixion gives a clue to a series of impersonations by the bride and bridegroom to be, other members of the royal family, and royal servants concerned.[28] The vogue for hidden portraits in sacred images had passed in the fifteenth century from Italy to the Netherlands, France, and Spain; and it must be difficult for anyone who looks at the evidence with an open mind to doubt that the Fairford glass is an example of it;[29] the only extended example, though it recurs in the glass of King's College Chapel, Cambridge, where Solomon receiving the Queen of Sheba wears the features of Henry VIII and sits (or sat originally) under a shield bearing the monogram HR.[30]

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[27] I am grateful to Dr J.H. Baker for advising on this point.

[28] See n.24

[29] Those who do so need to explain why certain characters in the sacred drama wear contemporary, indeed courtly costume, while the rest wear conventional biblical dress.

[30] H.G. Wayment *The Windows of King's College Chapel, Cambridge*, Corpus Vitrearum Great Britain Supplementary vol. I (London 1972) pp. 55-6.

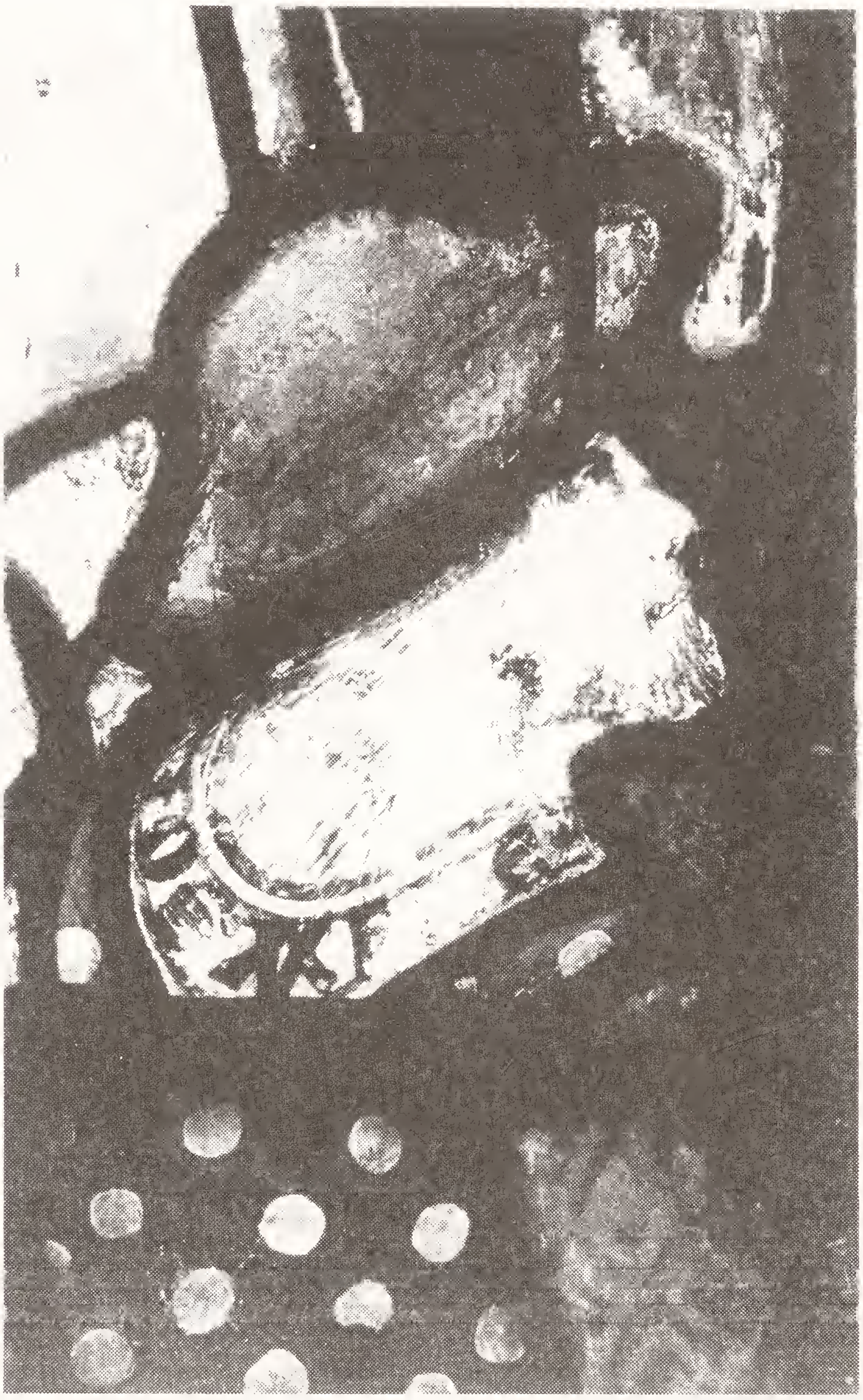

Fig. 3 Sir John Savile: detail of footsoldier from *Crucifixion*, east window, Fairford Church, Glos.

The figure of the footsoldier is badly worn, but there is a much better preserved figure in another part of the church which, though not similarly inscribed, may possibly give a more vivid impression of Sir John Savile's appearance. *David's Judgement of the Amalekite* who killed Saul, in the much damaged south-west window, contains nevertheless one almost intact light, the farthest north of five; here a footsoldier in a sallet with a halberd in his hand looks up at David on his throne in the centre (Fig. 4). The head is not dissimilar from that of the footsoldier in the east window. Might this not perhaps be a second disguised portrait of Sir John Savile, who was clearly proud of his position as a knight for the King's body? If so, it is the most convincing portrait of him which has survived.

The first campaign of glazing for Fairford no doubt ended abruptly with the death of Prince Arthur in April 1502. Sir John was nominated again to the

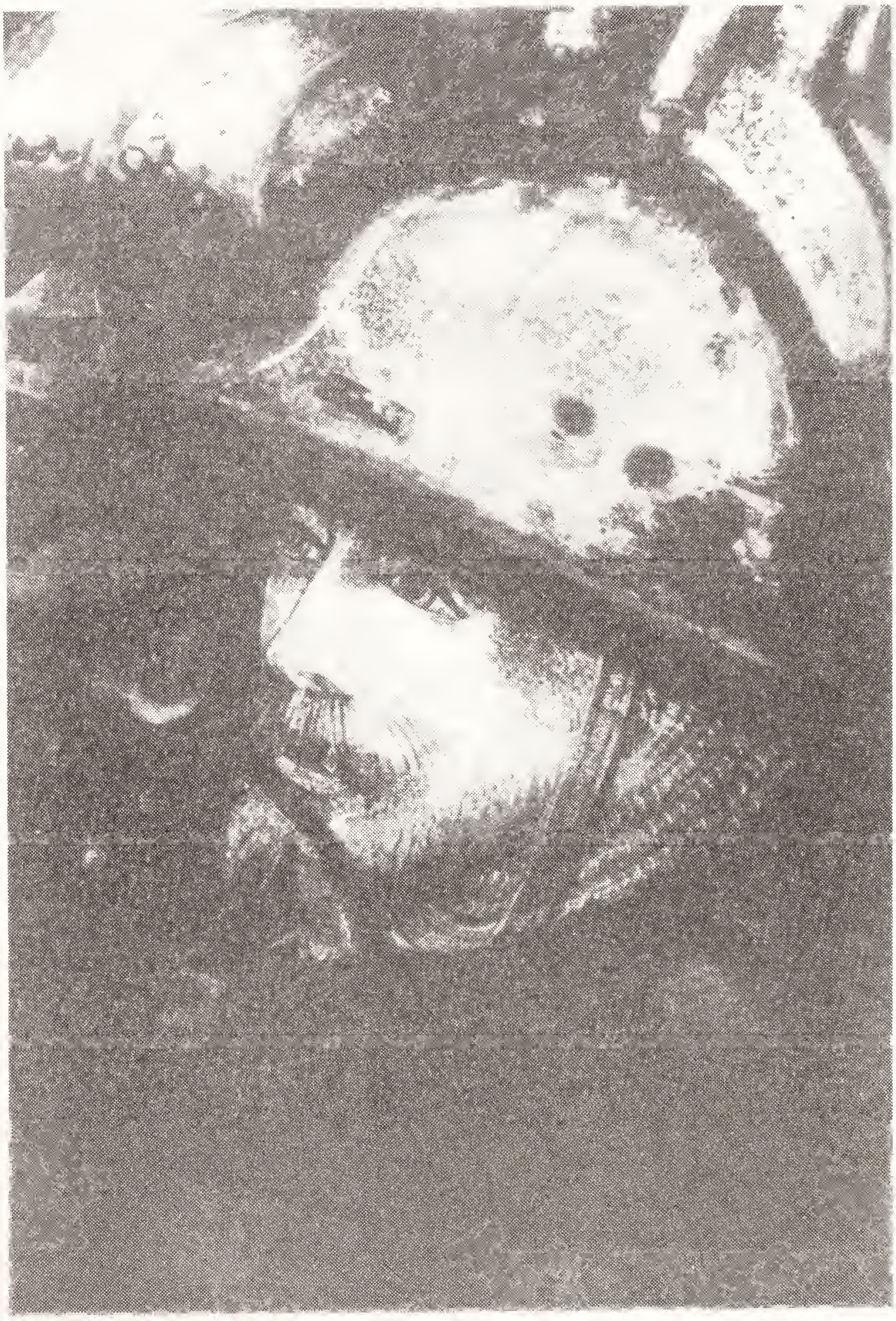

Fig. 4 ? Sir John Savile: detail from south-west window (s.X), Fairford Church.

Commission of the Peace for West Riding on 6 July of that year, but not on 14 May 1504. He signed his will on 31 March 1503, and was able to name two of the most powerful men in the country as feoffees, Sir Reynald Bray (who however died in August of the same year) and the Earl of Surrey, who in 1513 was to defeat the Scots at Flodden. Sir John died on 24 March 1505 n.s.; he must have feared that without powerful support his son Henry, who was aged only six, might not succeed to his estates; but Henry eventually did so in the 1520s. As for the nine townships - Stansfeld, Barkisland, Ovenden, Skircote, Shelf, Wadsworth, Ryshworth, Northland and Stainland - 'Sir John died peaceably seized of the same;' but complaints continued into the early 1530s. In 1513, at Calais, Henry VIII decreed that Sir John and his heirs 'should never make title nor claim to the said townships';[31] but later on Sir Henry secured the right from the King's Court of Exchequer to set up a trial which reversed the King's decision. The dispute continued into the 1530s. Sir Richard Tempest, then Steward of Wakefield, maintained that tenants in the townships held directly of the King, while Sir Henry Savile claimed to be mean tenant between them.[32] The feud between the two was only resolved by the suppression of the Pilgrimage of Grace and the death of Sir Richard in the Fleet prison on 25 August 1537.[33] Sir Henry remained loyal to the King; he died in 1556 'peaceably seized' of the disputed townships and at least twenty other manors.[34] He had proved himself a true chip off the old block.

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[31] Y.A.S. Record Series LI (1910), *Yorkshire Star Chamber Proceedings* III no. lviii pp.138-40; cf.*ibid.* II (Vol. XLV, 1910) nos xiv, xxiil, xxvii, and I (Vol.XLI, 1909) l, no.lxxxii.

[32] M.H. and R.Dodds, *The Pilgrimage of Grace 1536-1537 and the Exeter Conspiracy 1538* (Cambridge 1915) I pp.56 and 61.

[33] *Ibid.* II p.218.

[34] Clay (see n.3). Whitaker *op. cit.* p.312 gives a slightly different list, and credits Sir Henry with 300 messuages, 300 tofts, 10 watermills, and 22,080 acres, plus waste and commons perhaps amounting to as much more.

ENTERPRISE AND EXPERIMENT IN THE ELIZABETHAN IRON INDUSTRY: THE CAREER OF THOMAS PROCTER

by Catherine Collinson

The 16th century saw a great expansion in the mining and manufacture of iron. As the entrepreneurial spirit blossomed, landownsrs and others tried their hands at making iron. Many of these undertakings did not last long and of some, and the men who ran them, little or no trace has survived, either in written records or on the ground. Thomas Procter is not one of these. He has secured a place, albeit a small one, in the history of the industry by receiving, along with one William Peterson, a patent for making iron, steel or lead with 'earthcoal, seacoal, turf, peat or some of them', the first patent for using mineral coal in iron-smelting.[1] Despite this, little has been written about Thomas Procter's actual career in iron.

As an industrialist, he may have been a late starter. Until he was almost 40 years of age, he lived in Winterburn, near Gargrave, on a property called Friarhead, which his forebears had held as tenants of Furness Abbey. Thomas's father had been given a 61-year lease by the abbey in 1534 and, after a dispute about its validity, a further lease for 41 years by Edward VI.[2] Although farming was presumably Thomas's main occupation at Friarhead, and he was to claim that he possessed skill as a ploughman, it is not impossible that he was introduced to the metal industries during these years. He was a child when a neighbour and kinsman, Thomas Procter of Cowpercote, briefly leased lead-mines in Appletreewick, but that may not have been the only involvement that members of the Procter clan in Winterburn had with mineral working.[3]

About 1574, Thomas Procter bought Warsill, a former grange of Fountains Abbey situated about 3 miles from the abbey itself, and moved there with his family, selling the lease of Friarhead to the Dowager Countess of Cumberland. He was soon plunged into financial difficulties, and as a result of the mortgages he entered into, and the expedients he adopted to pay them off, he briefly lost possession of the estate in the late 1570s.[4] In 1580, however, he was back in residence, but still in debt. He had been helped by John Procter of Bordley and John Hamerton of Hellifield Peel, who had borrowed money on his behalf, and they now received

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1. Printed in R.H. Tawney and Eileen Power, *Tudor Economic Documents,*Volume II (London, 1924), 262-6.
2. T.A. Beck, *Annales Furnesienses* (London, 1844), xciii; *Yorkshire Star Chamber Proceedings* IV, Y. .S. Record Series LXX . (1927), 136-8; Chatsworth, Currey Papers, L/28/138 f.79. I owe this last referernce to Dr R.T. Spence. Thomas's date of birth not known, but his parents married c.1534, and he and a younger brother, Gabriel, were born within the following five years.
3. B. Jennings, ed., *A History of Nidderdale* (Huddersfield, 1967), 72.
4. PRO, STAC5/A35/1. Information about Thomas's dealings with the Dowager Countess of Cumberland at the time of his Warsill purchase, for which I am again indebted to Dr. R.T. Spence, comes from the Currey Papers at Chatsworth, L/28/138 f.79.

some title to the estate - according to Thomas, so that they could act as his trustees and pay off some of his debts. When they prevented the removal of timber that Thomas had sold, and were then expelled from the premises, a dispute began which was fought through several courts and was still unresolved in 1589.[5] An attempt by the Earl of Cumberland to settle the matter in 1586 by arbitration failed, mainly because Thomas had mortgaged the estate yet again.[6]

One question asked of Thomas Procter and some of his associates in the course of a Star Chamber action brought by John Hamerton and John Procter began:

> Whether have you heard the said Thomas Procter divers and sundry times or at any time in inns and alehouses where he, his wife or others his servants and friends hath been in company with Hamerton and Procter will, request or desire Hamerton and Procter to pay and discharge the charge of him the said Thomas and his company brought with him . . .[7]

Someone unable to pay for a round of drinks seems an unlikely person to try to revolutionise the iron industry, but Thomas was already involved in the industry and his money troubles may partly have arisen from this. Capital had to be tied up in stocks of ore and charcoal, and iron was a risky business for a small ironmaster with little else to fall back on.

The ironworks that Thomas Procter owned at this time is in more than one document simply said to be in Yorkshire.[8] This might suggest that there was some doubt as to how to describe its location, not altogether surprising in a sparsely populated area where the old monastic estates were in the process of being broken up. It is clear, however, that it was not far from Warsill, probably somewhere in Brimham. There is no record of when this ironworks began, whether Thomas founded it or bought it as a going concern, or even of what sort of ironworks it was. In Yorkshire at that time, however, it is very likely that it was a bloomery rather than a blast furnace. In the bloomery, or direct, process, iron ore, previously roasted or weathered, was smelted with charcoal in what is usually described as a bowl-shaped hearth. The metal did not melt, but formed a bloom - a porous mass of wrought iron interspersed with slag - at the bottom of the hearth. The bloom was then subjected to repeated hammering at the forge, with intermittent heating at a string hearth, to consolidate it into bar iron and remove the slag. By Thomas Procter's time water-power was used at the forge and to work the bellows at the bloomsmithy.

Iron ore existed in the millstone grit of the Brimham area - Fountains Abbey had had an ironworks in Dacre in the early Middle Ages.[9] Charcoal Thomas could have obtained in plenty from his own estate, which was well wooded. The existence there of woods called Billington Spring, Collier Spring and Littlewood Spring suggests that coppicing woodland for charcoal-making had been carried on in Warsill, though it had not necessarily continued until Thomas Procter's time. Wood for charcoal is not mentioned in the course of Thomas's dispute with John

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[5] *Acts of the Privy Council 1588-9*, 430; PRO, REQ2/147/2, STAC5/H48/1.

[6] PRO, SP12/189/11.

[7] PRO, STAC5/P60/6.

[8] PRO, REQ2/49/13, STAC5/G14/27.

[9] Jennings, op. cit. in n.3, 61.

Hamerton and John Procter, which started with the sale of larger timber trees. It is possible, however, that these prolonged lawsuits, together with his various mortgages, made Thomas uncertain about his continuing freedom to cut wood on his estate and encouraged him to look for another fuel, for he began experimenting at this time. Coal was also to be found in the Brimham area: the 19th century local historian, William Grainge, mentions the existence of coal of poor quality at Winsley and near Smelthouses.[10]

An interest in finding an alternative fuel to charcoal was not peculiar to Thomas Procter. There was a great deal of concern about the disappearance of woodlands, which was attributed to charcoal-making for the iron industry, and statutes had been passed to restrict this. Much was made of this aspect in the preamble to Thomas's patent. There were, however, other motives for turning to coal. Charcoal was extremely expensive, even for an ironmaster who owned his own woodland. Coal would have been cheaper, as long as it did not have to be carried a long distance, and would therefore have reduced the costs of iron-smelting. Another reason, which Thomas Procter himself was to bring up much later, was that if the iron industry had not had to rely on charcoal, which could not be transported far because of its friability, there would have been greater freedom in the siting of ironworks.

The drawback was that coal in its natural state was unsuitable for smelting iron with the technology of the time. It contained impurities, particularly sulphur, which would enter the iron and make it brittle. [11] Charcoal was not replaced until Abraham Darby in the l8th century found a way of using coke. Coal, in whatever state, would also have entailed some modification of the process. A stronger blast would have been necessary, and the ore would have had to remain in contact with the fuel for longer, necessitating a larger furnace or hearth.[12] Whether Thomas Procter was aware of any of these difficulties and was doing anything to overcome them must remain a mystery, for nothing is known of his method. All that can be said, on the basis of a clause in his patent, is that he was conscious that the quality of coal or ironstone affected the success of his process. The presence of sulphur in mineral coal was certainly known. In 1590 John Thornborough, Dean of York, obtained a patent for refining or purifying coal ‘to correct the sulphurous nature’ and ‘free it from its offensive smell’, but this was apparently for domestic, rather than industrial, use, and it is not known what sort of treatment he proposed. [13]

Thomas’s experiments can have done nothing to make the ironworks profitable, and it is not surprising that his business was affected by his general financial difficulties. By 1586 the ironworks had been mortgaged, together with the Warsill estate, to William Brokebank, a member of the London Grocers’ Company, [14] who in 1585 also bought the Brimham Hall estate from the heirs of William Byrnand.[15] Thomas nevertheless formed the idea of obtaining a patent for his new process. A patent would give him a monopoly on the use of alternative fuels for a time and enable him to get ahead of the opposition. It would also advertise his competence and perhaps bring him partners, investment capital, new ironworks, and these were probably of more interest to Thomas than the monopoly patent itself.

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[10] W. Grainge, *Nidderdale* (Pateley Bridge, 1863), 37, 114.

[11] A. Raistrick, *Industrial Archaeology* (St. Albans, 1973), 124.

[12] T.S. Ashton, *Iron and Steel in the Industrial Revolution*, 3rd ed. (Manchester, 1963), 31.

[13] Robert L. Galloway, *A History of Coal Mining in Great Britain* (1st pub. 1882, repr. Newton Abbott, 1969), 40; J.U. Nef, Rise of theBritish Coal Industry I (London, 1932) , 247-8.

[14] PRO, SPl2/189/11. For Brokebank, see J.A. Rees, *The Worshipful Company of Grocers* (London,1923), 16, 159.

[15] *Yorkshire Fines*, Part III, Y.A.S. Record Series VII (1889), 36.

Accordingly, in the autumn of 1586, Thomas set off for London with his (third) wife, Elizabeth, to begin the campaign for a patent, which was to take three years. His recent lawsuits would have made him familiar with the capital, and he was not without friends who knew the ways of the court. His eldest son, Stephen, the future builder of Fountains Hall, was married to the daughter of a court musician, Ralph Green, and the would-be purchaser of the timber from Warsill was a royal chaplain. There was also the Earl of Cumberland, but as Thomas Procter had recently refused to accept his arbitration award, this might not have been the time to ask him for help.

The person who claimed to have been instrumental in obtaining the patent, however, was an Exchequer official, Edward Anlaby. It was he, according to his own account, who decided that the people to approach were the Secretary of State, Sir Francis Walsingham, and Sir John Perrott, and who chose a suitable intermediary, a Mr Yorke, instead of 'merchants and common persons'. He also worked with the lawyers drafting the patent and wrote some of the clauses himself. But his assistance went well beyond this. Thomas, his wife and servants stayed at Anlaby's house during this visit to London until the spring of 1587, and throughout this time Anlaby paid all Thomas's expenses, lent him gowns, doublet and other clothes on special occasions, such as when he had an interview with Walsingham, lent him money and stood surety for him for £1100 when his son - presumably Stephen - refused to do so. After Thomas's return to Yorkshire, Anlaby paid for all the trials of the process, or so he said, and met other expenses at the ironworks. His help was given on the understanding that he would be Thomas's partner and share the profits of the patent and with this in view he gave up his post in the exchequer.[16]

The trials for which Anlaby paid were not carried out at the Brimham ironworks, which had been sold to the mortgagee, William Brokebank, for £1000, less the sum of £343 13s 4d, which Thomas owed to Brokebank. Stephen Procter and his father-in-law, Ralph Green, had obviously owned shares in the works, for they joined in the sale.[17] By settling with Brokebank, Thomas may have cleared Warsill of one mortgage, but he was left without an ironworks and possibly with little cash in hand - the £343 13s 4d may not have been the only debt to be subtracted from Brokebank's purchase price.

Brokebank did not remain long in possession of the ironworks, selling both it and the Brimham Hall estate to one Thomas Dyke or Dykes, who, on first expressing an interest in the property, declared that he would 'turn the same iron works to great profit'.[18] His confidence sprang from his experience in the more advanced iron industry of the Weald, where most of England's iron was made during Elizabeth's reign. He owned or leased a forge and two blast furnaces near the Sussex border in Kent, and, although his younger son settled in Yorkshire, Thomas Dyke's main interests continued to lie in the Weald. While owner of the

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[16] PRO, SP12/230/105.
[17] PRO, REQ2/49/13.
[18] PRO, STAC5/G14/27.

Brimham Hall estate, he lived at Pembury in Kent, and later at Frant in Sussex.[19]

In the industry of the Weald, the bloomsmithy had been superseded by the blast furnace. Unlike a bloomery, the blast furnace could remain in production for weeks at a time, as the higher temperature melted the iron and allowed it to be run off. The blast furnace produced cast iron, which was used for ordnance but was too brittle, because of its high carbon content, to be hammered into bar iron without further treatment. Heating at a finery hearth removed the carbon, and the worked with the resulting bloom could then go to the great hammer. Another hearth called a chafery was used for reheating during the hammering. Finery and forge were usually combined under one roof and needed a good water supply, as the hammer and the bellows for both hearths were worked by water power. This was what Thomas Dyke was used to, and if Thomas Procter's former ironworks was still a bloomery, he might be expected to lose no time in erecting a blast furnace somewhere on his new estate. He is certainly said to have been smelting iron in a 'furnace' between 1587 and 1589,[20] and the forge at Summerbridge mentioned in the early 1590s was probably a finery forge. Dyke's works, of course, had nothing to do with Thomas Procter, but they were on his doorstep and provided him with an opportunity of widening his knowledge of the industry.

While Thomas Dyke was bringing Wealden technology to Nidderdale, Thomas Procter was becoming the tenant of a bloomsmithy near Shipley. In this enterprise he was partnered by the sons of his first marriage, Stephen and Elias, and by Gregory Pormort, a Hull merchant. Edward Anlaby paid £73 for expenses at Shipley, and the trials that he financed were conducted there, but he was probably not formally a partner. Thomas Procter's Shipley ironworks was almost certainly the one on the Bradford Beck near Windhill, described as two iron smithies in a survey of the manor of Idle in 1584. Known as Shipley Smithies or Gawcliffe Smithies, it consisted of a bloomsmithy and a forge or 'stringsmithy', as it is called in a document of 1579. Before its acquisition by Thomas Procter it had been occupied by one Richard Wille, who operated it on behalf of Sir Thomas Danby, and in the early 1580s it had been worked in conjunction with the Farnley Ironworks in Leeds and used for only a few months of the year. Wille complained to Danby in 1579 about its poor state of repair, and its condition was evidently still unsatisfactory at the time of the survey in l584. In the opinion of the writer of the survey, it would be beneficial 'if the said smithies were conveniently repaired and so maintained', if ironstone could be used from within a mile or two and if 'the woods and springs within the said Lordship might be orderly and well kept for to maintain the same with coals (i.e. charcoal)'. Iron ore from the Shipley area was clearly not being used.[21]

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[19] J.J. Goring, 'Wealden Ironmasters in the Age of Elizabeth', in E.W. Ives, R.J. Knecht and J.J. Scarisbrick, eds., *Wealth and Power in Tudor England* (London, 1978), 211, 218, 220, 224; .H. Cleere and D. Crossley, *The Iron Industry of the Weald* (Leicester, 1985), 132, 134, 15C, 322, 329, 337; PRO, E133o,/7/1055; Leeds District Archives, Greenwood MSS 38A, deeds of 1602, 1615. Robert Dyke lived in Brimham for a time but then settled in Westwick, near Newby (West Riding). He sold the Brimham property in 1620. (PRO, C54/2424)

[20] PRO. E133/7/1055.

[21] 'Mannor or Lordship of Idle, A.D. 1584', *Bradford Antiquary* I (1888), 272; PRO E134/35 & 36 ELIZ/MICH 34, SP12/230/105; Y.A.S., MD279/B8/2. The 1579 document is among the Danby papers deposited in North Yorkshire County Record Office - reference ZS (MIC 2087) - and I am indebted to Michael Collinson for a photocopy and Michael Ashcroft for further information.

Thomas Procter was to use local ironstone, but not until later. There is a reference to 'Gildersome stone', and that was probably what he was using in the first years at Shipley. In this he may have been carrying on a practice begun during the association with the Farnley works. It is not as unlikely as it may appear. When Sir Richard Shireburn had an ironworks at Esholt in the late 1560's, the iron ore was being brought from 8 miles away.[22] That would be about the same as the distance betwen Shipley and Gildersome - or, for that matter, between Esholt and Gildersome. The high cost of carriage, however, meant that Sir Richard had to pay more for ironstone than for charcoal, and this would have applied to Procter as well. Thomas would also have had to buy charcoal from local suppliers, as he owned no woodlands there, and this, too, would have added to the cost. Making iron in the normal way with charcoal would therefore have cost more than at his previous works, and so, despite the availability of coal in the neignbourhood, would his trials with other fuel - though, of course, Anlaby was paying for them. As a tenant he also had rent to pay.

If Thomas now remained in Yorkshire to run the new works and supervise the trials, his interests in London were doubtless being looked after by Edward Anlaby and by Stephen Procter, who lived mainly in the London area from the middle or late 1580s until after his purchase of the Fountains estate in the late 1590's. It took some time, but on 8 May 1589 Sir Francis Walsingham was informed that the queen had agreed to the patent two days before, but that a proviso was to be added at the request of the Lord Treasurer.[23] Thomas Procter had to wait several more months before he finally received his patent.

In the meantime he found himself appointed to a commission to look into breaches of a statute of 1558 which forbade the making of charcoal from timber trees one foot square or more 'at the stub' growing within 14 miles of the sea or a navigable river. [24] The places where the alleged infringements of the act had occurred included Warsill and Brimham, and the people complained against included William Brokebank and Thomas Dyke. Thomas Procter and his fellow commissioners met at Ripley on 6 August 1589 and took evidence from two witnesses before deciding to proceed in a different way. Both these witnesses worked for Thomas Dyke - a collier or charcoal-burner from Warsill and Thomas Were, who described himself as a clothier but said in his evidence that he acted as clerk to Thomas Dyke and overseer of his works in Brimham. Neither was very helpful. Thomas Were knew about oak trees being felled in Brimham but had no idea of their dimensions. The charcoal-burner testified that 60 oaks had been cut in Summer Wood that were a foot wide at the stub, but what they 'would be square he cannot depose'. Neither could say how far Brimham was from a navigable river. The commissioners did nothing further, as they could not find a convenient day for another meeting. [25]

Depite the inconclusive evidence and the fact that the profits of forfeitures under the 1558 statute had recently been the subject of a grant, the man who had laid the information, Henry Green (or Grene), was allowed to proceed with an action against Dyke and other alleged offenders in the Court of Exchequer. When, the following May, he produced six witnesses from around Warsill, they were well prepared. All knew how many timber trees, of what sort and of what dimensions had been felled by Thomas Dyke's orders in Brimham, Dacre Pasture, Northfields, Heyshaw and Warsill, and even the charcoal-burner, Laurence Angell alias Russell, could say how far these places were from the River Ure, from which, as all agreed, access could be had to the sea by way of York and Hull. They had also travelled, or been taken, into the North Riding to view tree-stumps at Spiers, near Spaunton, and in Lealholm Park and ascertain who was responsible for the felling and how far these places were from a navigable river. It has the look of being very well organised.[26]

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[22] B.J. Awty, 'Sir Richard Shireburn's Esholt Ironworks', *Bradford Antiquary* X, (1962), 243-54.

[23] PRO, SP12/224/21.

[24] H.R. Schubert, *History of the British Iron and Steel Industry* (London, 1957), 221.

[25] PRO, E178/2705. I owe this information to Michael Collinson.

Thomas Procter's role in this business is a mystery. The trees that Thomas Dyke was felling in Warsill were on Thomas's land, and the witnesses Henry Green took to London were Thomas's friends and neighbours. (The apparent exception, Giles Ryther of Cawood, was an associate of Thomas's.) Dyke was also being pursued through the courts on another matter by one William Green, who had certainly been a visitor at Thomas Procter's house, [27] and Henry, William or both could well have been related to Stephen Procter's wife. If the Greens were ganging up on Dyke, where did Thomas Procter stand?

The last few months before the patent was granted must also have been the time when it was decided to include William Peterson as joint patentee with Thomas Procter. [28] Anlaby makes no mention of Peterson in his complaint, and judging by the wording of the patent the decision to include him was taken at a late stage: his name has not been inserted as often as it might have been. Peterson seems to have had no other connection with Thomas Procter, and the most likely reason for his inclusion in the patent is that he had provided Thomas with money. He may not himself have had anything to do with the iron industry but have hoped, like Anlaby, to benefit financially from the patent. [29]

It was on 9 October 1589 that the long-awaited patent was finally granted. Edward Anlaby and the lawyers had worked hard and produced a substantial document. After a preamble about the loss of woodland, it stated that Thomas Procter had 'by his practice, industry and endeavour to his great cost and charges, found out a rare way and means of using of earthcoal, seacoal, turf, peat or some of them, to make as much iron, steel or lead with one load of woodcoal as hath heretofore and is now usually made with four loads of woodcoal'. He and Peterson were given sole leave to use this process for seven years, but were not to be restricted to using only a fourth part of charcoal in places where there was a good supply of coppice wood. No one else was to use coal or peat at all in the making of iron, steel or lead in the following seven years without a licence from the patentees, with the proviso that this should not prevent anyone continuing with a method already in use. Procter and Peterson were to pay the Crown 2s 6d for every ton of iron made this way, 6s 8d for steel and 6d for lead.[30] Seven years was an unusually short time for a patent to run. Perhaps this was felt to be long enough for a monopoly over all use of alternative fuels in smelting.

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[26] PRO, E133/7/1055.

[27] PRO, STAC5/G14/27.

[28] Peterson is not identified in the patent other than by the style of gentleman. A William Peterson of St. George's, Southwark, is worth considering (PRO, C54/1334).

[29] Similarly, when a patent for making iron with coal and peat was granted to Robert Chauntrell and John Astell in 1607, it was Chauntrell alone who was said to have devised the process (PRO, C66/1699).

Thomas may have been satisfied, but someone who was far from satisfied was Edward Anlaby, who had nothing to show for all his effort and expense. He was moved to set down all that he had done for Thomas Procter, complaining especially that he had received nothing in return for his investment in the Shipley ironworks.[31] Perhaps he had learned of new developments at Shipley, for the patent had brought Thomas Procter a new investor. Edward Cage was, like William Brokebank, a citizen and grocer of London and, like Brokebank, he was interested in investing in property and industry in Yorkshire. Thomas, Stephen and Elias Procter and Gregory Pormort made an agreement or contract with Cage, the gist of which was that Thomas would build a new ironworks at Shipley - a blast furnace and forge, not a bloomsmithy - and Cage would pay for it.[32] This was probably early in 1590. It was either part of the agreement or something previously understood that Thomas would smelt local Shipley ironstone with coal, thereby producing good iron at very low cost. This promise was said to have been what induced Cage to enter into the contract with the Procters. A servant of Cage's saw a 'platform' written by Thomas or one of his partners, which demonstrated that iron worth £12 a ton could be made from the local ore, giving a profit of nearly £8 a ton. This would have been a very powerful inducement.

Sites were found for the new works and leased by Edward Cage. The forge was to be at Shipley Hirst (between the present Nab Wood and Shipley Glen) on land belonging to William Rawson, the blast furnace at a place called Brucrofts 'near unto Shipley'. It may be asked how much Thomas Procter knew about the construction of ironworks of this type. He had the example of Thomas Dyke close at hand and he, or his associates who went on the fact-finding journey to the North Riding, could have been acquainted with the works at Rievaulx, where what is believed to be the earliest blast furnace in Yorkshire was built. There is no reason, however, to suppose that his knowledge of the iron industry was confined to Yorkshire. He certainly travelled about England.

Whatever his knowledge and experience were, he himself over-estimated them and turned away some workmen who were sent to him, allegedly saying that 'the veriest bungler in Yorkshire, if he could but chop and hew as he . . . would bid him, would serve his turn well enough'. Accordingly, he employed masons and carpenters to build the blast furnace who were, in the words of Robert Baildon of Baildon, 'both unskilful and unexpert for the erecting of such manner of works'. As a result, the furnace was apparently poorly constructed, too small and lacking an adequate water supply, and it was probably never used. At the forge there was a carpenter unequal to the task of dealing with water-wheels. Thomas Procter nevertheless hired hammermen and finers long before they were likely to be needed, and they, with their wives, children and, in one case, a mother-in-law, were hanging about Shipley for six months or more with nothing to do and receiving wages from Edward Cage.

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[30] Tawney and Power, op. cit. in n.l, 262-6.

[31] PRO, SP12/230/105.

[32] The following account of Thomas Procter and Edward Cage is based on W. Paley Baildon, *Baildon and the Baildons* (3 vols., 1912-27) II, 235-6, 240-1, and PR0, E134/35 & 36 ELIZ/MICH 34.

Attempts to smelt the local ironstone with coal were going on at the bloomsmithy. Thomas found a source of iron ore on the land of William Rawson and gave the ironstone the name Crackers 'by reason that in the burning the same used to make great crackings'.[33] It seems to have been particularly ill-suited to Thomas's process. Thomas Batley of Covell Houses in Nidderdale watched one trial, carried out, he said, by very skilful workmen, and the iron turned into a light white cinder. He was told by Charles Whitacres, who worked at the Shipley bloomsmithy, that it was impossible to make good iron with Crackers. Whitacres himself admitted as much in evidence the following year and, according to Cage's servant, William Watts, also confessed that Thomas had told him to mix other iron with Crackers in order to deceive Cage.

Nothing was going well. In August 1590 Thomas Procter and Edward Cage were in York together and on 25th they signed an agreement. This was just between the two of them; Thomas's partners were not involved. After this, Thomas began absenting himself from the new ironworks. He would visit Shipley, but keep away from Cage's works, and he gave out that he had taken a vow not to go there again. On one of these visits, in December 1590, he was called upon by William Watts, a servant of Edward Cage's, who begged him to complete the work. Thomas strangely informed him that the blast furnace was 'not built with intent to cast iron therein, or words to that effect'. Leaving this point, Watts asked him how much more it was going to cost to finish the ironworks and make iron successfully with Crackers. Thomas assured him that Cage would have to pay nothing further for the building work and was to have the bloomsmithy. The following morning, however, Thomas left Shipley, and he was not seen there again for two years.

The bloomsmithy was not assigned to Cage, and he not only had to meet the expense of finishing the new works, he had to take charge himself. Thomas's carpenter was dismissed, and three other men completed the forge. There was still, however, a problem over the water supply, and later the forge had to be drastically altered and all the machinery set lower. The blast furnace was still unused in the summer of 1593. Cage possibly abandoned it and built another: he was using a furnace at some stage. One thing that he did not do was continue experimenting with Crackers iron.

When Thomas Procter turned his back on Shipley and Edward Cage, he was not leaving the iron industry. He had come to the notice of Sir Edward Witton, who was interested in building an ironworks on his estate at Gawsworth, near Macclesfield.[34] Perhaps Thomas was supposed to be building the ironworks for him under a similar arrangement to the one he had had with Cage. In the course of one of the subsequent law-suits, Fitton denied having said that Thomas had completed the ironworks according to his promise or had found him stocks of iron ore and peat. It looks as if a blast furnace was built at this time, but possibly nothing else, for Witton later wanted it put in writing that he could erect a forge and other works himself. By September 1591 Thomas's active involvement at Gawsworth had ended and he was in London. An agreement was then concluded, by which Thomas was to give Fitton a licence to use coal and peat at his ironworks. Sir Edward was to give Thomas £300, of which £150 was to be paid immediately. He was without cash, however, and persuaded Stephen Procter to borrow on his behalf in the City. Stephen, who was obviously at home in the financial world, duly raised the money, presumably giving bonds in his own name to the lenders, and paid his father, but prudently decided to keep the licence himself until he was paid by Fitton. He was right to foresee difficulties, for it took him until the following February to persuade Fitton to give him bonds for the £150, and Sir Edward then induced him to sign a note or memorandum promising that his father would execute a deed ensuring that Fitton's ironworks would be free of any demand other than the royalties due to the Crown under the patent.

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[33] It is a pity that Thomas Procter chose this name. Contemporaries referred to the iron made from this ore as 'Crackers iron', and it will be necessary to do so here.

[34] There was ironstone in Gawsworth, but not in great quantity. ' . . . In some instances these Rocks contain a percentage of Iron, but are not rich enough to pay for smelting . . . A full examination of them does not reveal evidence of their containing any mines of coal, neither of Iron or Lime capable of being profitably worked . . .' (Raymond Richards 'The Manor of Gawsworth, Cheshire', *Transactions of the Ancient Monuments Society*, N.S. vol. 5 (1957), 329, survey of minerals, 1874.) Whether this was the ore that Fitton was using does not emerge. The available evidence comes from the records of the later suits between Fitton and Stephen Procter, which were only indirectly concerned with Thomas Procter and the Gawsworth ironworks, so that this episode in Thomas Procter's career remains obscure.

When Stephen failed to obtain payment fron Fitton, he sued him for debt. Sir Edward tried to block this action by bringing a suit in Chancery claiming that the bonds he had given Stephen concerned the deed he wanted from Thomas, not an existing debt. The court, however, accepted Stephen's story and also the evidence of two witnesses, who testified that Fitton and Thomas Procter had been seen in conversation several times, while Fitton had been insisting that Thomas could not be produced in court as he was not to be found. Chancery therefore threw out Fitton's case, but this did not help Stephen. Sir Edward brought an action for breach of contract in another court, and Stephen lost a counter-action alleging that Fitton had fraudulently added some words to the memorandum that he had signed in February 1592. Finally, Stephen sued Fitton and two of his servants in Star Chamber, accusing them of perjury, forgery and violent attacks on his person.[35]

All this was Stephen Procter's problem, and Thomas seems to have had no part in the quarrel. He and his wife spent a large part of 1592 in Westminster at 'one Wallis house', having food and drink sent in from a tavern kept by a goldsmith, Henry Kettlewood, and his wife, Judith, In August Stephen Procter paid the Kettlewoods £10 on account, which he said was his father's money, but apart from that they received nothing and tried to persuade Stephen to take responsibility for his father's debt. When approached by Kettlewood, Stephen complained about his father being 'so chargeable' to him that he had to borrow money himself, and would promise only to let him know when Thomas had money. Later, however, when Gregory Pormort tackled him and warned him that his father would not be supplied much longer without some undertaking by him, Stephen apparently relented but did not want Thomas to know, 'for that he feared that he would exceed in expenses'. Stephen made some sort of promise to the Kettlewoods but did not keep it, and when Thomas and Elizabeth returned to Yorkshire, a debt of £26 was still outstanding. In 1594 Stephen Procter found himself being sued for this amount. There was no point in suing Thomas. It was well known that he had made over his estate to Stephen to keep it out of the hands of his creditors or, as the official version had it, so that Stephen could pay his debts for him.[36]

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[35] PRO, STAC5/P35/24, STAC5/P27/34, STAC5/P40/6, C2/ELIZ I/F4/53, C33/90 f.730.

On his return home, Thomas had to give his attention to Shipley again. There had been changes since his last visit. Edward Cage now had a functioning ironworks there and had acquired more land to use for storage.[37] In 1591 depositions had been taken about Crackers iron, though whether on behalf of the Crown or in connection with a law-suit is not clear. Now there was indeed litigation in progress. Stephen and Elias Procter with Gregory Pormort had brought an action in the Court of Exchequer against Edward Cage and two of his servants, William Watts and Ralph or Randall Wright, over the original contract for the ironworks. Thomas Procter was not a party to this action, probably because of the agreement he had later made with Cage.

Perhaps it was felt that the plaintiffs' case was weakened by Thomas's failure to make satisfactory iron with the local ore, for at Christmas 1592 another trial was conducted at the Shipley bloomsmithy in the presence of Thomas and Stephen Procter. After smelting, the iron was taken to Summerbridge Forge to be beaten into bars at the great hammer. Some of it was seen by Thomas Batley of Covell Houses, who thought it very bad and very brittle. He and William Watts, who was presumably investigating on Edward Cage's behalf, learned that that the bloom had weighed about 500 pounds but after hammering had yielded only 2½ hundredweights (280 pounds). The forgemaster told them both that he would not take the iron for the fuel used in working it. If 1000 tons of Crackers iron were deposited at the forge, he went on, and he could have it free for his trouble, he would not work it. Crackers iron was, he assured Watts, not worth anything.

Despite this setback, the Exchequer suit continued. Evidence was taken from Cage's witnesses at Bradford on 30 July and 2 August 1533. Allowing for the facts that there were witnesses produced by Cage because their evidence would be favourable to him and that some were or had been employed by him and that the questions were framed so as to produce the desired answers, their testimony still forms damning criticism of Thomas Procter. The defects in the construction of the ironworks were dealt with by most witnesses. William Watts said that the forge still needed further alteration. Several people said that there were holes in the masonry of the blast furnace. If it had been used, the timber framework that supported the furnace on the exterior would have caught fire. The watercourses at both forge and furnace had been inadequate. Thomas had not made a dam at the furnace and, according to Thomas Wayles of Windhill, the dam made for the forge had broken. These were mostly local people, not experts, though Thomas Batley claimed to have experience of blast furnaces, but the fact that the furnace had never been used bears out their evidence.

The one apparent expert among the witnesses was Richard Pegg, who gave his occupation as 'hammerman and worker of iron at the great hammer at an iron forge and also worker at the finery and chafery of an iron forge' and in the course of his evidence claimed to have 20 years' experience 'in most of the best ironworks in England. Unfortunately he could say little about the forge at Shipley, except that repairs had been done several times, as he had not been there long enough to know how Thomas Procter's men had left it. On the subject of blast furnaces his knowledge was perhaps less good. It seems unlikely that the exterior measurements of Procter's furnace were really too small by 10 feet at a time when a blast furnace in the Weald might be about 20 feet square. Pegg referred to the inadequacy of the water supply and also alleged that water was entering the furnace - a hazard that had to be guarded against when furnaces had to be sited so close to water - but surely underestimated the danger if he believed that a flood at full hearth would merely have put out the fire.

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[36] PRO REQ2/34/84, REQ2/232/15.

[37] Paley Baildon, op. cit. in n.32, 232-6.

After the ironworks had been dealt with, the witnesses were asked about the iron made with the local ore. Batley and Watts reported their conversations with the forgemaster at Summerbridge. Watts also referred to evidence given in 1591 about other iron being mixed with the Shipley ore and supplied additional information about a gavelock, which had been used to stir the iron in the bloomery hearth and had been badly damaged. He had seen a piece that had been cut off it, and it showed how the cinders and 'other drossy iron' had been 'knocked together and beaten'. Stirring was a normal part of the bloomery proces, and old slag may have been used in the hearth as a flux, but Watts considered the damage to the gavelock proof of improper use. (Unfortunately no one who had worked for Thomas Procter gave evidence on this occasion.) Richard Pegg stated authoritatively that good iron could not be made from Crackers using turf, peat or coal: he had seen it attempted, but never done satisfactorily, and thought that to do so would have cost more than it was worth. The deficiencies of this iron were evidently well known. Thomas Procter had paid some local men in Crackers iron instead of cash, and they had had great difficulty in disposing of it.

Some witnesses, especially William Watts, were suggesting that Edward Cage had been the victim of a confidence trick by Thomas Procter, who was, said Watts, 'a man noted to be very full of cautelous devices'. Cage had, the witnesses agreed, paid for everything. Thomas had made puns to his workmen about letting the bird out of the cage. 'How think you, mine host?' he asked his Shipley landlord. 'Will he stand by it? . . . And hath he it in him?' Some people had thought that Cage should be warned. According to Watts, Richard Tempest of Shipley had spoken to Cage's brother, advising him to see that Thomas did not 'beguile' Edward and as a result hed had 'displeasure and hard speech' from Thomas. Two witnesses mentioned Thomas Procter's friendship with William Thornton, an employee of Edward Cage's, who made payments on his master's behalf, and suggested that it was after Thornton was dismissed from Cage's service that Thomas began to stay away from the works. Hugh Yewdale of Windhill had observed a meeting of the two in Brucrofts, when Thomas had thrown his arms around Thornton's waist.[38] (Thornton was not forgotten by the Procters, if he was the same William Thornton who afterwards lived at Fountains and worked for Stephen Procter. Stephen's widow bequeathed to William Thornton, her 'ancient servant', a service book, from which he read the service on Sundays, and a caliver with a firelock.)[39]

If any evidence for the plaintiffs was taken, the depositions have not survived. Nothing further appears in the records of the Exchequer: the case was either dropped or settled out of court. Edward Cage was presumably left in peaceful possession of his ironworks, though if he thought that he had seen the last of the Procters, he was sadly mistaken. Management of the Shipley bloomsmithy seems to have devolved upon Gregory Pormort, who was living there in 1594.[40]

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[38] PRO, E134/35 & 36 ELIZ/MICH 34.

[39] J.R. Walbran, *Memorials of Fountains Abbey* II, Surtees Society LXVII (1878), 253.

Thomas Procter by now had almost nothing except a patent, and that had done him little good so far. He had presumably paid no royalties to the Crown and was without an ironworks and without means, but he was not finished with the iron industry. The chance to take part in another trial, though apparently in a subordinate capacity, was provided by a 'Mr Topcliffe', who can only have been that Richard Topcliffe who is chiefly known for his pursuit of Roman Catholics and his interest in the use of torture.[41] Although not himself active in the industry, Topcliffe was interested, or was persuaded to take an interest, in the use of peat in making iron. There had been a suggestion in Richard Pegg's evidence that peat had been used at Shipley, and it was also mentioned in connection with Gawsworth, where peat would certainly have been readily available. Perhaps Thomas Procter was turning to peat after being unsuccessful with mineral coal, or because peat was cheap and easily obtainable. A mixture of peat and charcoal was used in the iron industry in some places, and in 1550 a patent had been granted for mining iron ore on Exmoor and Dartmoor and smelting it with 'moor coal',[42] but peat by itself was unsuitable for use in a blast furnace as it did not produce enough heat and could not support the weight of the charge.[43]

Topcliffe obtained a commission, probably from the Privy Council, to conduct a trial wherever he chose, apparently using iron ore from a Crown estate. This seems to have allowed him to take over someone else's ironworks for his experiments. The ironworks chosen was Edward Cage's, though the choice was not made by Topcliffe. 'Procters were the only men that procured him into Yorkshire into this action against Cage.' (Cage's account always refers collectively to 'Procters', presumably Thomas and one or more of his sons.) They assured Cage that it would only take four days, but instead, he complained, his works were 'stayed' for nearly four months. Topcliffe said that he only meant to make 2 or 3 hundredweights of iron, but finally made about 2 tons. The 2 tons cost 200 marks (£133 6s 8d), by Topcliffe's own account, and Edward Cage was claiming £118 12s 3d for his goods and losses, so that it was 'dear iron'. Not included was the cost of the carriage of the ironstone, for it was brought 60 miles by unpaid and unwilling Crown tenants. (The aim of the trial may have been to show that ironworks using Thomas Procter's process could be established with advantage on royal estates.) Anxious to be reimbursed and to refute claims made by Topcliffe for the success of the trial, Cage had a document drawn up setting out his case in detail for the information of Lord Burghley, the Lord Treasurer.[44]

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[40] As a witness in *Kettlewood v. Procter* he was described as 'of Shipley Smithies' and 'of the parish of Shipley' (PRO, REQ2/232/15).

[41] *Dictionary of National Biography,* 'Richard Topcliffe'.

[42] *Calendar of Patent Rolls, Edward VI,* III, 344-5.

[43] Schubert, op. cit. in n.24, 224-5; Raistrick, op. cit. in n.11, 122. According to Ashton (op. cit. in n.12, 44) peat in a raw state is very inflammable and therefore dangerous in a blast furnace, but raw peat is not in question here.

[44] BL, Lansdowne MSS 59 f.201. Unfortunately, this document is undated, and the date assigned to it in the *Catalogue of the Lansdowne Manuscripts* is clearly wrong. I am assuming that Topcliffe's experiment took place at some time between the Exchequer depositions of July-August 1593 and early 1595, when Topcliffe was imprisoned. This coincides with a gap in the Privy Council registers.

It was not true, he demonstrated, that Topcliffe had used nothing but peat. The furnace had been heated with charcoal - at Cage's expense - because peat coal had failed to do this. In the smelting five and a half loads of Cage's charcoal had been used with three and a third loads of peat coal, all that had been produced from 60 loads of raw peat paid for by Cage.[45] Similarly at the forge two loads of Cage's charcoal had been used, along with an unknown account of peat. In addition, the Procters had been working at the forge, sometimes with charcoal, sometimes with a mixture, and helping themselves to charcoal over and above what was being charged to Topcliffe. It is not clear whether this was work on Topcliffe's iron, or whether it is implied that the Procters were taking the opportunity of working some iron of their own.

It was at the forge that the deficiencies of the smelting process became apparent. 5 tons had been cast at the furnace in a week - 'great abundance' -but had only yielded 2 tons of bar iron. Generally that amount would have been obtained from 3 tons of rough iron. According to Cage's complaint, 'in the hammering of these 2 tons they wrought a whole month, night and day, Sunday and other'. At forges manned by the same number of people as Cage's, it was normal to beat out 2½ tons a week without nightwork, Burghley was informed. Furthermore, workers at forges would usually work a ton for 20s or less, whereas Topcliffe's finers and hamermen said they could not work a ton of his iron for less than 54s 4d. It had been necessary to reheat every bar 20, 30 or even 40 times and to be careful in guiding the hammer, 'lest in the heat it should beat the iron about the forge'. A smaller hammer had had to be used after the great hammer for 'brazing and sowdering' of broken pieces, flaws and cracks. It all argued imperfection, said Cage, and the iron produced was very brittle, despite Topcliffe's claim that he had made nails, horseshoes and tools with it. A workman had said that he would not willingly work Topcliffe's iron because of its hardness and that, if he did and had paid over £6 for a ton, it was more than he would make from it. 'Other iron there', it was added, sold for £11 or £12 a ton.

If Topcliffe argued that it had only been a trial, Cage's reply was that Topcliffe had had the advantage of using a 'perfect works' with water and fuel provided. This was not Cage's idea of a trial. Reluctant to blame Topcliffe too much, he suggested that they were both in the same position. It was the Procters who had wanted to lead Topcliffe into expenses, as they had done with Cage and others, and to cause trouble between him and Cage. Topcliffe's attitude, however, had not helped. His 'shewing himself so forward to aggravate any conceived matter whatsoever' had evidently been the last straw, and Cage desired 'as well restitution, as reformation'.

Lord Burghley's response is not known. It seems at least unlikely that this trial was repeated, or that Cage's works were disturbed again.

As time passed, the question of another patent arose. A copy of the 1589 patent is endorsed: 'A trewe Coppye of the fyrst lettres pattentes . . . .[46] It may be significant that one of the signatories testifying to the accuracy of this copy was Richard Topcliffe. If, however, he had thoughts of joining with Thomas Procter in seeking a second patent, he either changed his mind or missed his chance. The serious contenders, who emerged in 1595, were Sir Robert Cecil, Lord Burghley's son, and the third Earl of Cumberland.

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[45] It is also said that in the 'tooling' of peat for the hammer, 25 loads of raw peat yielded only eight seams, less than three parts of a load. Presumably the peat was being made into charcoal - hence 'peat coal' unless Procter had a process of his own. Galloway (op. cit. in n.13, 40) thought that the peat was being coked, but this may have been based on a misreading.

[46] Tawney and Power, op. cit. in n.l, 266.

Dr Spence has dealt with the agreement between these two men and Thomas Procter in a recent article in the *Yorkshire Archaeological Journal*.[47] Briefly, Thomas assigned his patent to Cecil and Cumberland on 22 March 1595, having previously bought William Peterson's share. Then on 23 March a very elaborate agreement was concluded. Under this, Cecil and Cumberland would do their best 'with all convenient speed' to secure Procter a reversion of the patent, which he was also to assign to them. It sounds as if they wanted to have a new patent before the original one expired. The rest of the agreement was to take effect after 1 Febrary 1596, so perhaps they aimed to have the reversion by that date. From then onwards Thomas, or someone nominated by him, was to find suitable sites for ironworks which would be built and stocked at Cecil's and Cumberland's expense and then leased back to him. Two such ironworks were to be erected every year for a period of 31 years.

Cecil and Cumberland were careful to avoid Edward Cage's mistake. They put a strict limit on what they were to spend on any one ironworks, laid down what their share of the profits was to be in proportion to their investment and reserved the right to veto any proposed site. While Thomas was allowed to invest in any of the ironworks himself he might not take any other partner. It is still impossible not to ask: were they serious? What they were proposing to do would have been an ambitious undertaking for anyone, never mind Thomas Procter. Obviously the partners, or one of them, wanted the patent very much and preferred to obtain it in Procter's name. Perhaps some such arrangement was the price to be paid. At least they had the right to take back any ironworks if Thomas fell behind with the payments. On the other hand, as Dr Spence has pointed out, such a detailed document certainly suggests a serious intent. They may have hoped that Thomas, by then nearly 60, would not act himself but appoint nominees, as allowed by the agreement.

Thomas, alas, did not have the opportunity to establish new ironworks at the rate of two a year. He was not granted a new patent, and the agreement with Cecil and Cumberland did not take effect. Instead, the original patent expired without having benefited anyone.

Other opportunities may have come Thomas's way. Stephen Procter on 6 June 1597 received a Crown lease of coal, ironstone and marl at Fulwood near Mansfield in Nottinghamshire.[48] This could have been a chance for Thomas to continue with his experiments - indeed it almost looks like compensation for the lack of a new patent - but there is no evidence to show what was done under, or with, this lease. While coal was worked at Fulwood in the 17th century, there is no mention of iron, and the coal there was said to be of poorer quality than that obtainable not far away.[49] Perhaps it was not an opportunity for Thomas after all.

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[47] R.T. Spence, 'Mining and Smelting in Yorkshire by the Cliffords, Earls of Cumberland, in the Tudor and Early Stuart Period', Y.A.J. 64 (1992),163-4. I am grateful to Dr Spence for allowing me to consult a copy of the original agreement.
The Countess of Cumberland had been pursuing an interest in iron independently of her husband, and in partnership with others. Dr Spence (op. cit. 162-3) has speculated that she may have invested with Thomas Procter. There is no evidence to connect the Countess with either Procter or Topcliffe, but the possibility remains that she had an interest in Topcliffe's experiment.

[48] PRO, C66/1470. Strictly speaking, the lease was granted to *a* Stephen Procter, but no other Stephen Procter appears in Patent Rolls or State Papers at this period.

Nearer home, the Earl of Cumberland built a blast furnace and forge on the River Crimple. There is no evidence to suggest that Thomas Procter had anything to do with it. Dr Spence has shown, however, that the Grassington blacksmith was employed by Cumberland in 1602-3 to make a pair of bellows 'which would have been used for Iron making which was Mr Proctors devise'.[50] Did Thomas's experience with coal lead to his designing bellows to give a stronger blast? Was he making iron for the Earl of Cumberland?

Evidence may be sparse as to what Thomas was actually doing, but he clearly retained his interest in iron, while also applying his fertile mind to other subjects, and, as he entered his eighth decade, his entrepreneurial spirit was still undimmed. In 1607 he published a small book with the title *A worthy worke Profitable to this whole kingdome. Concerning the mending of all high-waies and also for waters and Iron workes.*[51] Most of the book described Thomas's method of building roads, which he was making public out of 'the love to his country in this his last age and years'. Thomas's system involved constructing a platform with a ditch on either side, placing a wooden frame on top of this, filling the interstices with stones, iron cinders (slag) or whatever was available and finally topping with small gravel, rubbish or sand. He provided diagrams illustrating different patterns of frame that might be made and also advised on the number of men needed to do the work and the number of carts needed to carry the materials.

Having dealt with road construction, Thomas turned to his two other 'projects' and here he did not reveal his methods to his readers. The first concerned canals, although he called them waters or rivers. He proposed to dig canals to link two rivers together, or to bring water to a town that had none. As one of his examples, he suggested a canal between the Thames and the Severn. This was to benefit trade, and Thomas specified the goods - coal, cloth etc. - that might be carried. If anyone was prepared to finance the work, he was ready to perform it together with his son, Elias Procter, 'of good and sufficient skill and experience in the said works', at a cost of £250 a mile.

Thomas's third project was for making iron. Under his direction iron could be made with a third part charcoal, where there were coppiced woods, or without charcoal at all. Ironworks of his sort could be placed on waste land on royal estates 'with water and watercourses, fuel and ironstone, and for peat and all other necessaries . . . and produce a rent of £20 where no rent had been paid before. For this, Thomas proposed to charge either 20 shillings for a ton of iron or three shillings out of every 20 shillings made. He made no mention of a patent for making iron with coal or peat granted in January 1607 to Robert Chauntrell and John Astell. It was to last for 21 years but otherwise was not as generous as Thomas Procter's had been. The patentees were not to use more than one-fifth of the usual amount of charcoal, and the patent was to be void if they exceeded this amount. No others were to make iron with mineral coal or peat alone or with a mixture in which the amount of charcoal was no more than one-fifth of what was normally used. Thomas's one-third charcoal was safely above this limit, but in proposing to use no charcoal at all he would appear to have been risking an infringement of the new patent.[52]

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[49] *Victoria County History, Nottinghamshire* II (1910), 327-8.

[50] Spence, op. cit. in n.47, 164-7.

[51] 'Printed by E. Allde & are to be sold at his house on Lambard-hill, neere Olde-fish-streete.' (University Microfilms International, *Early English Books 1475-1640*, reel 723.)

A worthy worke shows Thomas as a man ahead of his time and, alas, of his own capabilities. It is probably the first book about highway maintenance ever published,[53] besides being an early example of a business advertisement. Thomas's proposals were adventurous but are unlikely to have borne fruit. Although he recommended his method of making roads as a way of saving money in the long run, it is unlikely that any parish would have gone to so much trouble and expense in the first place, or even that his ideas were widely known.[54] He was clear-sighted in pointing out the value of canals to internal trade, and there was interest in inland navigation at the time, but the difficulties of raising capital and dealing with the legal rights of landowners, as well as technical problems, meant that little was done.[55] It would be interesting to know what experience Thomas or Elias had in digging canals.[56] As to the ironworks, Thomas's reasoning was again impeccable. The problem was that he could not actually make iron without charcoal.

In 1610 Thomas's book was reprinted, unchanged except for the title page,[57] even though Elias Procter was now dead, and Thomas himself was said to be 'grown weak through the greatness of his age'.[58] Thomas lived until 1622,[59] surviving three wives, his two elder sons and, very probably, all the ironworks with which he had been connected. Although he may not, therefore, have been so very weak in 1610, it is in that year that he is last heard of, acting to prevent his son's mortgagee from taking possession of Warsill.[60] It was a long time since Warsill had belonged to Thomas, and this serves as a reminder of how far Thomas's life was from being a success story. He lost his land, his business ventures failed and he was usually penniless. While it would be unfair to blame him for his failure to smelt iron with coal or peat, when it was to be so long before an alternative to charcoal was developed, it is unlikely that he would have prospered even if he had eschewed experimentation. Large sums of money did pass through his hands, but very quickly. He probably began with insufficient capital and lacked income from other sources to tide him over bad patches. In any case, doing things on a small scale does not seem to have been his way. It was evidently a characteristic of his to devise overambitious schemes, possibly always hoping that this time he would succeed. There remains the question of how much deliberate dishonesty entered into his dealings with Cage and others - the 'cautelous devices' for which he was said to be noted.

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[52] PRO, C66/1699. There may have been a connection between Robert Chauntrell and Thomas Procter, who certainly had an associate of that name earlier. (PRO, STAC5/G14/27, STAC5/P40/6.)

[53] 'This is the earliest work on highway maintenance with which we are acquainted, and its publication at the beginning of the seventeenth century is probably significant.' (S. and B. Webb, *The Story of the King's Highway* (new edition, London, 1963), 44n.)

[54] 'But it is doubtful whether any of the parish surveyors read Procter.' (T.S. Willan, *The Inland Trade* (Manchester, 1976) 3.) I am indebted to Professor Willan's book for drawing *A worthy worke* to my attention at the psychological moment.

[55] J.W. Gough, *The Rise of the Entrepreneur* (London, 1969), 275-7.

[56] In the part of *A worthy worke* concerned with roads, Thomas displays a knowledge of Holland in Lincolnshire, where his son Stephen, had property interests. This might suggest possibilities.

[57] The title became *A Profitable worke to this whole kingdome*, and no publisher's name appeared (Microfilm cited in n.51, reel 1668).

[58] Elias Procter was buried at Ripon 12 September 1608. The description of Thomas is from PRO, STAC8/227/35 f.10.

[59] He was presumably the Thomas Procter of Warsill, gentleman, who was buried at Ripley 15 May 1622 (Y.A.S. MS604).

[60] PRO, STAC8/227/35 ff.10., 28.

While it is not always easy to take Thomas Procter seriously as an ironmaster, it is hard not to admire him for his ideas and for his seemingly unquenchable spirit. Having heard so much evidence against him, it is only fair to leave the last word with Thomas. *A worthy worke* begins with a dedicatory poem addressed to the king, in which Thomas represents himself as a plain, simple man, despite what others may say. The third stanza depicts a different Thomas Procter from the one who would have been recognised by, say, Edward Cage:

> In plow-mans painfull toile,
> my skill is something good:
> And in the arte deuoide of guile,
> my minde not wauering stood,
> Loe yet my heart could not discearne,
> by glosing wordes that skill to learne.

Acknowledgements

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'A RAGE OF PLOWING' : THE RECLAMATION OF THE YORKSHIRE WOLDS

by A.Harris

Between the middle years of the eighteenth century and the early decades of the nineteenth many thousands of acres of the Yorkshire Wolds were brought into cultivation from sheep-walk and rough pasture. By the 1830s about 70 percent of the agricultural area consisted of arable land (tillage and temporary grass) and permanent pasture had become largely confined to steep slopes, home paddocks and a handful of unimproved estates. [1] The transformation was accompanied by controversy, echoes of which were still to be heard long after the grasslands themselves had largely disappeared. J.H. Tiffen, a land agent, was to record in 1884 that he had met farmers who believed the condition of the Wolds to be 'not so good as when the land was first brought into cultivation after years of pasturing' during the Napoleonic wars.[2] Fears that some soils might be exhausted by excessive cropping were certainly well publicized during the wars, when the margins of permanent cultivation on the Wolds were considerably extended and the newly-ploughed land was made to yield two or three crops of corn in successive years. It is likely, however, that it was the scale of the problem at this time, rather than its emergence, which served to arouse disquiet, for neither the ploughing' of old grassland nor fears that the land might subsequently be ruined by injudicious cropping were then new. Both Arthur Young and his informant Sir Digby Legard had condemned in the 1760s what was described as the 'rage of plowing' then in progress on the chalk uplands and reclamation was to continue throughout the 1770s and 1780s before intensifying toward the end of the century [3] Much old grassland was broken up after 1815 also as tenants bargained successfully with their landlords to take more crops during the difficult post-war years. [4]

The evidence available to G.E.Fussell in 1954 led him to believe that contemporary fears of soil exhaustion following over-cropping of newly reclaimed land were unduly pessimistic and perhaps exaggerated. 'There may have been some over-cropping in the eyes of a man who adhered to the old system', he wrote

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1. Calculated from summary totals in 50 Tithe Awards and Apportionments covering 101,252 acres of Wold land *c* 1836. Information is to be found in 54 such documents, but in four cases it did not lend itself to the type of analysis attempted here. The Wolds which form an arc of elevated chalk country extending from Flamborough Head to the Humber, occupy about 330,.000 acres in all. The tithe surveyors were instructed to record as arable all land which had been ploughed for crops, rotation grasses or fallow during the three years preceding their survey (J.B. Harley *The Ordnance Survey and Land-Use mapping*, Historical Geography Research Series no..2, Mildenhall 1979,p33).
2. John Henry Tiffen, Prize Essay on the Agriculture of the East and North Ridings of Yorkshire, *The North British Agriculturalist*, 29 October 1884,p.735.
3. A.Young, *A Six Months Tour Through the North of England*, (London,1770)1,p.183; 11,p.16.
4. Parliamentary Papers, *Select Committee on the State of Agriculture* 1836, Second Report and Mins-of Evidence, QQ 5400,5603,5527, evidence of Charles Howard.

'but that was corrected in time'.[5] It was 'a little too much to say that many thousands of acres had been impoverished by paring and burning followed by continuous crops of rape and corn', as both Isaac Leatham and Henry Strickland had asserted was the case *c* 1800. It is suggested here that contemporary fears were well founded; that the line between opportunism and bad management was a fine one in many Wolds parishes and that the well-publicized problems of the period 1793-1815 owed much to earlier practices of land management in the district.

The potential for change

Although retrospective accounts invariably mention the shrinkage of the area devoted to grass on the Wolds, few do so in anything but general terms. Strickland's comments of 1812, which appeared when there was still some way to go before the task was finished, provide an exception.[6] They can be interpreted as indicating a net gain of more than 100,000 arable acres since the middle of the previous century. By early Victorian times it had become usual to refer to these acres collectively as former sheep-walk, thus implying that they might share both a common origin and a common history of management in the years leading up to their reclamation. This was not so.

Some of the land involved was 'fresh' and therefore similar to the 'maiden down' of the South in having remained unploughed for many years. When Charles Varley, a farmer and contemporary of Young, wrote about the Wolds *c* 1770, he observed that he 'would sooner take a farm there than in any part of the kingdom, the land being fresh'.[7] 'Fresh' land offered the attractive prospect of a quick return from the high yields which would normally follow its conversion into arable land. A generous allocation of 'fresh' land at the time of enclosure was said to pay both for its own reclamation and that of inferior land nearby.[8] Farmers like Varley were naturally keen to occupy it, especially if they could obtain permission to plough it, while landlords for their part could expect a considerably higher rent if they agreed. As William Marshall pointed out, farm rents where there was 'fresh' land were likely to reflect the presence or absence of such permission.[9] However, even 'fresh' land demanded careful management if the promise of its early years under the plough was not to turn later into disappointment or worse. This was particularly the case on the higher parts of the Wolds where many soils were shallow and poor in plant nutrients and where sources of manure other than the sheep flock were chronically scarce before the nineteenth century. Not surprisingly, many contemporaries viewed with concern any suggestion that 'fresh' land should be ploughed at will.

Although 'fresh' land was widely distributed and locally dominant, it was not the

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[5] G.E. Fussell, 'The Reclamation of the Wolds. An Achievement of the Gentry' *Jnl. Land Agents Soc.*,53 (1954),p.159.

[6] H.E. Strickland, *A General View of the Agriculture of the East Riding of Yorkshire* (York1812),pp.106-8.

[7] Desmond Clarke(ed), *The Unfortunate Husbandman, an account of the life and travels of a Real Farmer in Ireland, Scotland, England and America* (London,1964), p93 Varley was also known as Varlo. For fresh land elsewhere see E.L. Jones, *Agriculture and the Industrial Revolution* (Oxford,1974),pp. 29-31 (Hampshire) and Leeds District Archives, Sheepscar TN/BS Files D and G (Barton-le Street, North Riding).

[8] Strickland, op.cit, p 93.

[9] W. Marshall, *The Rural Economy of Yorkshire* (London,1788),II,p.249.

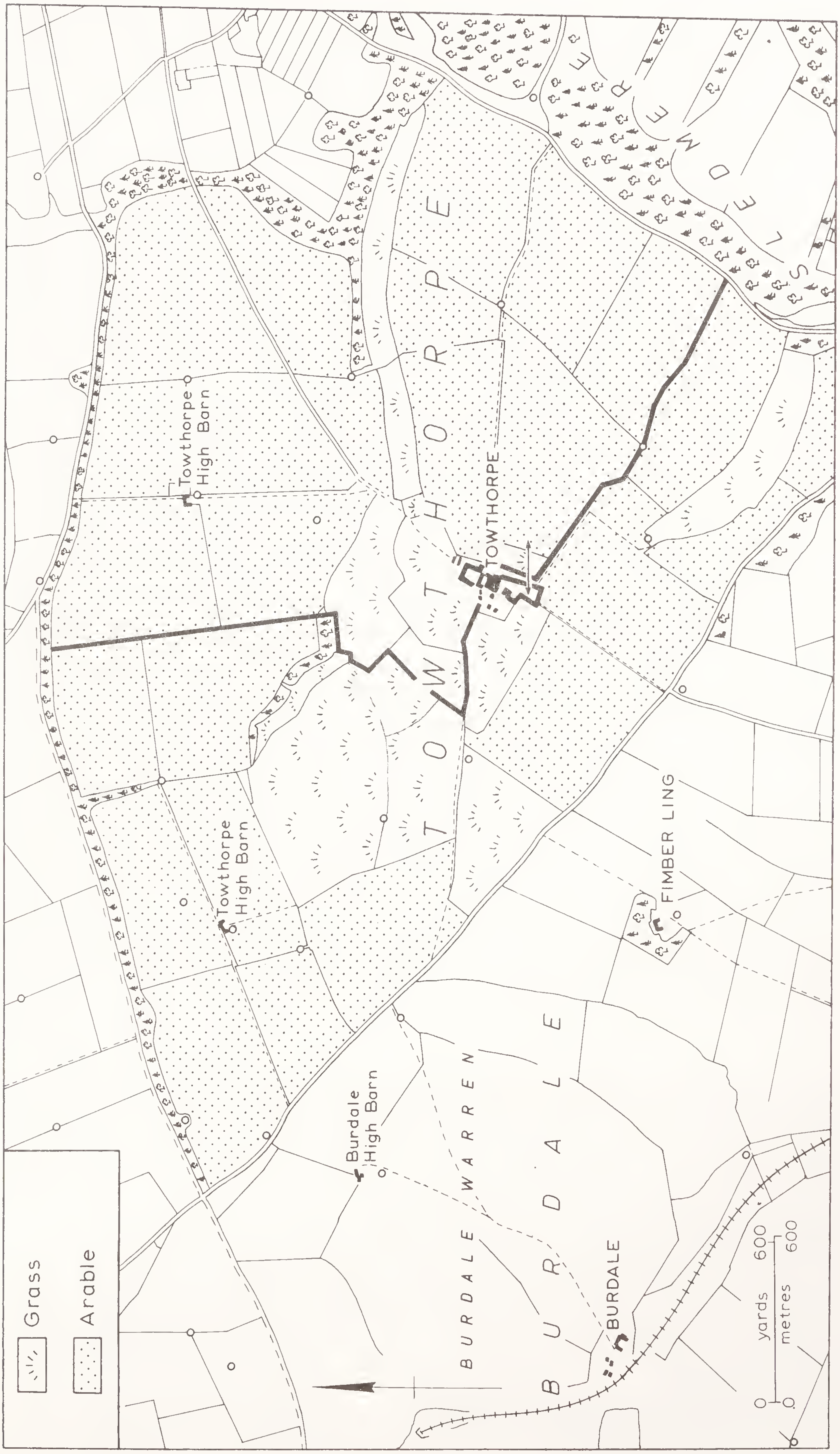

Fig. 1. Contrasts within the Wolds *c* 1850. Much warren and sheep-walk was broken up in Towthorpe between 1772 and 1816, producing the highly cultivated countryside shown here. In the neighbouring Burdale property some 400 acres were still used as a commercial rabbit warren. Based on the Ordnance Survey Six-Inch sheet Yorkshire 143 (1854) and on Hull University Library DDLG(2)/1 (*c* 1881) for the use of land in Towthorpe. The heavy black line marks the boundary of the two farms which together occupied the whole of Towthorpe and a total of 1,700 acres. Their origins are to be found in an earlier phase of property consolidation and farm amalgamation.

only category of land under grass *c* 1750. Few of the others however merited William Marshall's description of old pastures as 'treasuries' of accumulated fertility, for unlike these they had been cultivated in the recent past.[10] Their cultivation was often within living memory and its visible signs in the form of ridge-and-furrow or a developing turf cover were well known to farmers.[11] In some places there was at least as much land of this kind as there was ancient sheep-walk or beast pasture. Excluding leys some 70 per cent of the grassland recorded in surveys of the open fields of Helperthorpe can be shown to have been ploughed during the eighteenth century. If leys, which are treated in the surveys as part of the arable field, are included then the proportion rises to 88 per cent. In the neighbouring settlement of Weaverthorpe, leys, accounted for 44 per cent of all recorded grassland and one-fifth (21.6 per cent) of the open-field area in 1800.[12] The status of leys is not always clear, but there are indications that they were subject to occasional cultivation.[13]

This was certainly the case where land was used for the commercial breeding of rabbits. 'As the price of Rabbits vary', Sir Christopher Sykes explained in 1789, 'a Warrener keeps more when they sell well & Sheep & Corn sell Low & fewer Rabbits when Sheep & Corn sell high'. [14] Such a response to market forces led to land being 'taken out & sown with Corn 2 or 3 Years, & then laid down with Grass Seeds' to be grazed once more. [15] Critics complained that these bouts of ploughing took more out of the land than was returned in the form of dung and that the work of re-seeding was often badly performed. A calculated balance of advantages might determine how much of a warren farm was kept under cultivation. After being allowed in 1791 'to plough out what land he pleased', the tenant of a warren at Hunsley cultivated 'many acres' before deciding that to proceed further would impair the value of the farm as a warren.[16] In the event the rabbits were not destroyed until *c* 1803, when almost the entire farm was brought into cultivation.[17] The practices described in these examples were not confined to the later eighteenth century, as events in Warter show. Here, in 1749 William Dowthwaite a warrener secured permission to plough 30 acres of sheep-walk within a newly-formed Warren.[18] He was to do this over a period of three years and was to sow 'oats and other grain, before re-seeding the land to grass. It was evidently possible for a considerable area of land to be worked over in this way although the cultivated ground seldom formed at any one time a large proportion of the farm.

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[10] *Ibid.*p.250.

[11] Young, *op.cit.*p.16; Borthwick Institute of Historical Research (hereafter B.I.H.R) CCP SN9/SN/1 (1774); Hull University Library (hereafter H.U.L.), DDBA(2) 15/9 (1775-76).

[12] Humberside County Archive Office (hereafter H.C.A.O. .John Dalton's notebook (1801) 1A/G 33 H.U.L. DDSY 70/125 and 70/126 (1784).

[13] In Thixendale a distinction was drawn in 1793 between 'Grass Leys' and 'Tillage Leys' (H.U.L DDSY 66/2). H.UL.. DDBA 8/69 (1726) is also informative.

[14] H.U.L , *Letter Book of Sir Christopher Sykes*,1775-1790, p105.

[15] *Ibid.*,p.105. J.Simpson, *The Wild Rabbit In A New Aspect*, 2nd ed. (London 1895), pp.118-19, was in no doubt about the value of rabbit dung as a manure. Earlier writers were less certain, however, and thought the response of a warren to cultivation owed more to a period of rest than to the dung contributed by the rabbits (Richard Parkinson, *Treatise on the breeding and Management of Live Stock* (London,1810),11,p.307

[16] H.U.L.,DDDU 10/69 (1802).

[17] HU.L.,DDDU lO/l8 (1803), 10/76 (1802),10/78(1802).

[18] H.U.L., DDWA 6/25(1749), 7/1 (1749)

Land might be cultivated occasionally for other reasons. Edward Anderson's *The Sailor: a poem* refers to Luttons Ambo before the enclosure of 1804:

Some little farms were spread o'er many a mile,
To see their management would make you smile;
Half of the lands lay waste, so poor laid down.
They could not get manure so far from town [19]

When distance was combined with difficult terrain, as was often the case where the land was dissected by dry valleys, the problem of distributing manure was aggravated. There were undoubtedly many remote corners like the one described in 1774 at South Newbald and known as the Long Lands.[20] Although forming part of the oxgangs belonging to the township, and nominally arable land the strips were 'Seldom ploughed owing to the great distance they lye from the Town'. Ocasional cultivation, often within the physical framework afforded by an arrangemet of infields and outfields, was well established on the Wolds by the seventeenth century and was to remain common throughout much of the eighteenth century also.[21] Strickland thought that one quarter of the unenclosed land in a Wolds parish would typically be treated as outfield and be ploughed occasionally without receiving any manure other than that provided by grazing sheep.[22] To judge from the handful of examples for which adequate information survives, the pattern was complex and might differ appreciably even within contiguous parishes. The outfields of Helperthorpe occupied fewer than 200 acres in 1800, or less than seven per cent of the unenclosed area whereas in the neighbouring parish of Weaverthorpe outfield occupied 517 acres or 18 per cent of the common fields.[23] On an altogether different scale were the outfields of Warter, which until 1722 extended to more than 1,000 acres, or as much as the infields there.[24] The frequency with which they were cropped is not known, but their rental value was only one half that of the infield ground Seventy-three years separated the conversion of Warter outfield into sheep pasture from its eventual enclosure in 1795, but in many places outfields continued to be cultivated until the eve of enclosure. The interval between crops was frequently from three to six years, although in Weaverthorpe and Helperthorpe the outfields carried a crop every second year to the end.[25] It is of interest in this connexion that old swarth was defined for the purpose of tenancy agreements on the Sledmere estate in 1812 as grassland more than seven years old.[26]

Attention has been focused so far on grassland, both permanent and semi-permanent. Even the most pastoral of settlements was seldom without arable land, however, and many places had a great deal of it. Surveys covering a total of some 8000 acres in seven anciently enclosed places show a small but significant arable

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19. Jan Crowther (ed), *Decriptions of East Yorkshire: de la Pryme to Head*, East Yorkshire Local History Society, no.45 (1992)p.52. H D L. has a copy of the 182 edition of Anderson's work.
20. B.I.H.R., CCP SN9/SN/1 (1774); H.U.L., DDBA(2) 15/9(1775-76).
21. H.U.L.,DX 16/1 (1665); Strickland, op.cit.,p.92.
22. Strickland, *op.cit.*, p.105.
23. H.C.A.0., IA/G 33/8 (1801).
24. H.U.L.,DDWA 14/4 (1715), 14/7 (1726),14/9 (1733).
25. H.C.A.0, IA/G 33/8 (1801).
26. H.U.L., DDSY 66/347 (1812).

presence (10.4 per cent) even in townships which were devoted largely to warren and sheep-walk.[27] By contrast, some open-field communities including a number of the high Wolds, had large tillage fields which provided when fallow a substantial part of the available grazing.[28] Victorian versions of the agricultural history of the Wolds have little to say about the arable contribution to the economy other than to highlight its shortcomings. Yet of 94 enclosure Acts and Agreements passed between 1725 and 1854 and covering more than 65 per cent of the Wolds, 89 were concerned with both arable fields and pastures. The arable presence is relevant here partly because of Strickland's suggestion that much of it had become 'tired' by the eighteenth century, even though it frequently carried only one or two crops before being fallowed, and partly because decisions affecting old tillage had a bearing on the use of other land, including grassland.[29] These points may conveniently be considered in the contest of the contemporary problem of how best to fertilize Wold land.

Manures and manuring

The general complaint all over the Wolds' was said in 1735 to be a shortage of enclosed ground 'both for Hay and Grass for their Cattle and to breed more Manure and Compost for the ffield Ground.'[30] To alleviate this difficulty almost anything thought likely to improve the land, from lime to composts made of household and other refuse, was pressed into service to supplement the dung of cattle and sheep.[31] Some potential manures were in demand for other purposes however, as with straw, which was widely employed in thatching, and cow dung which was used by the poor as a fuel. Such problems were not confined to the Wolds but they were made more acute there by the absence of large centres of population from which town refuse might otherwise have been obtained, and by the failure of the inland navigations which served East Yorkshire to penetrate the uplands. Hull manure, for example, was carried by water far into the lowlands of Holderness and the Vale of York, but in Arthur Young's day it travelled no further than nine or ten miles overland; far enough, according to Charles Howard writing in the nineteenth century, to have saved the common fields of Swanland from 'extreme exhaustion' but well short of many places on the high Wolds.[32] Scattered evidence suggests that the traffic in town refuse elsewhere in East Yorkshire similarly failed to move much beyond the fringes of the chalk country.[33] The building of new farmsteads and out barns brought hitherto remote parts of

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27. Surveys of the following places were used: Arras, Cowlam, Eastburn, Low Hunsley, Mowthorpe, Raisthorpe and Weedley. In these 851 acres were recorded as arable and 7,316 acres as grass.
28. K.J. Allison (ed), *V.C.H. York East Riding,*11 (1974), pp238,267,328.
29. Strickland *op.cit.* p.106. For rotations, A.Hunter *Geogical Essays* (York,1803), 1,pp.103.4.
30. H.C.A.O., DDWR 1/30 (1735).
31. H.C.A.O., DDHB 1/20 (1770); Yorks.Archaeological Soc.MSS, 709(b)1796; *York Chronicle,* 8 April 1813; Strickland *op.cit.*,p.211.
32. *Young op.cit.,* 1,p.181 Charles Howard, *A General View of the Agriculture of the East Riding of Yorkshire* (London,1835), p.127 Baron F.Duckham, *The Inland Waterways of East Yorkshire 1700-1900*, East Yorkshire Local History Society, no.29 (1973)p23; *Doncaster, Nottingham and Lincoln Gazette*,7 January 1831(manure by water to the Goole area from both Hull and Leeds). Charles Howard was well known in his day as a farmer and land agent in East Yorkshire. He also served as an assistant tithe commissioner.
33. Young *op.cit.*, 11,p.16; Strickland, *op.cit.*, pp.94, 201-2.

many parishes within reach of sources of farmyard manure but did not meet the need for a readily available plentiful and easily transported fertilizer.[34] Bone manure was to supply this need but in the nineteenth century rather than the eighteenth. While bones were used in some parts of the North and West Ridings of Yorkshire by the later years of the eighteenth century and were the subject of experiment in the East Riding by *c* 1800, their almost universal adoption as a fertilizer on the Wolds came only after 1815 and therefore too late to be of assistance in the earlier stages of reclamation.[35]

In these circumstances the ancient practice of paring and burning (sodburning) assumed new importance both as an instrument of change and a source of controversy. After the turf had been removed with a breast plough, or paring spade, it was gathered into heaps which were then ignited and reduced to ashes. These were then spread on the land, where they served, in Strickland's words as 'the parent of all the ensuing crops'.[36] The operation cost from 17s. to 22s. an acre in the 1780s rising to as much as 33s. during the price inflation of the Napoleonic wars, but this was considered a small price to pay for clearing the ground and making available at the same time quantities of ash containing mineral nutrients.[37] Because it lent itself well to the reclamation of outlying areas which would otherwise be difficult to supply with a fertilizing agent, paring and burning was widely employed on land which had received little farmyard manure in the past, including outfields and warrens. Its use was not confined to these areas, however, and it was to become an element in local farming practice wherever old pastures needed to he broken up.[38]

There is some evidence that old tillage was laid down to form sheep-walks after enclosure thus creating a new generation of pastures.[39] These in their turn were eventually brought into cultivation with the assistance of paring and burning. Some landlords insisted on the use of sodburning when old grass was broken up but took the precaution of indicating what should be done subsequently to ensure that the initial benefit derived from the ashes was not swiftly dissipated by a succession of demanding crops.[40] By the later eighteenth century, however, paring and burning had acquired a dubious reputation in East Yorkshire as in many other

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34. For a discusion of out barns see Colin Hayfield, Manure Factories? The post enclosure high barns of the Yorkshire Wolds, *Landscape History*, 13 (1991),pp.33ff.
35. *The Farmer's Magazine*, Series, 3,7 (1855),p171; HC.A.O.,DDGR 43/29 (1801), for a "Bone Machine" at Heslington and preparations for its removal by water to Hull. A contemporary summary with local examples will be found in Report of the committee of the Doncaster Agricultural Association on the advantages of Bone as manure (London1829). Doncaster Central Library has a copy shelved at L630.6 Don.
36. Strickland, op.cit. p.210. For the antiquity of paring and burning in the East Riding, H.U.L.D.X. 16/1 (1665). For a general survey of the practice see Alan Gailey and Alexander Fenton(eds), *The Spade in Northern and Atlantic Europe* (Belfast 1970),pp.74ff. Paring spades were made locally (H.U.L., DX 21/2,Account Book of Francis Vause of Nunburnholme, 1778-1842, p7).
37. Marshall *op.cit.*, 1, pp.304ff; John Boys, 'On Paring and Burning', *in* A. Hunter *Georgical Essays* (York, 1804) 5, pp. 309ff.
38. H.U.L., DDDU11/216 (*c* 1813), for land in Kilham prepared for wheat by the paring and burning of old seeds.
39. H.U.L., *Letter Book of Sir Christopher Sykes, 1775-90*, pp5-6.
40. As for example when the ground known as the Hog Walk in Wharram Percy (about 100 acres) was due to be ploughed *c* 1808. The procedures to be followed were carefully stipulated in the lease (University of Notingham, Middleton MSS Mi Da 170). I owe this reference to Mr John Popham.

districts, not so much on account of its own shortcomings, but rather for its association with what were widely regarded as bad farming practices.[41] However its widespread employment as a first step in the cultivation of rough ground was to continue on the Wolds into the nineteenth century, when it gradually disappeared as bone manure and chemical fertilizers provided an alternative source of plant nutrients. [42]

The process of conversion

Not all conversion of grassland was prompted by the desire to grow corn. Apart from emergencies such as the cattle plague of the 1740s, which resulted in pastures being ploughed as a temporary measure, an important incentive to change came from the need to provide more hay and to improve grazing.[43] Until its role was usurped by root crops, sainfoin, a leguminous plant well suited to dry chalky soils was widely grown for these purposes. Its introduction was accompanied by a sharp rise in the rental value of the land on which it was sown and by a close interest on the part of the landowner in its management Indeed its early cultivation and subsequent spread on the Wolds were closely bound up with landlord interest in its development. Sir Digby Legard's experiments at Ganton on the comparative merits of sainfoin, lucerne and burnet are well known, but sainfoin was well established on the Wolds by the time these were carried out in the 1760s; the earliest account of its cultivation to come to light so far dating from 1732, when it was grown, together with lucerne and clover, on the Boynton estate of Sir William Strickland.[44] Sainfoin was given equal prominence with water meadows, marling and the building of cottages in a scheme drawn up in 1775 to improve the Birdsall estate, although the crop had almost certainly been grown there earlier in the century. [45] It figured prominently also in an ambitious plan to reorganize the farms in Fimber, one result of which would have been to give to each holding 12 acres of land to be sown with sainfoin. This would be worth 7s. an acre, compared with 2s. for 'plowing Land' and beast pasture, 12s. for meadow and only 1s. for sheep-walk[46] By the 1770s, if not before, sainfoin was sufficiently important on the Wolds to form the subject of special clauses in tenancy agreements.[47] Sheep pastures were also ploughed in order to improve them by means of more productive strains of grass. This was the case on part of the extensive sheep-walks which lay adjacent to, but outside, the common fields of Thixendale. Held in severalty and let to a sucession of graziers from many parts of the Wolds, they were the scene of several experiments with the plough during this second half of the eighteenth century.[48] These were evidently in part similar to those described by Sir Digby Legard to Young, in which a small area was cultivated for oats before being rested. Some land, however was tilled 'by Way of Improvement' and was sown with grass seeds. By 1795 these areas were said to be carrying twice as many animals as 40 years earlier.[49]

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[41] Isaac Leatham, *General View of the Agriculture of the East Riding of Yorkshire* (London1794) p.50. The division of opinion surrounding the practice of sodburning is reflected in Donald Woodward, an essay on manures : changing attitudes to fertilisation in England1500-1800', in J.Chartres and D.Hey(eds), *English Rural Society 1500-1800s: Essays in honour of Joan Thirsk* (Cambridge, 1990), pp.261-22.

[42] *Trans Yorks. Agricultural Soc.*, no3 (1840),pp.51-6; MCF Morris. *The British Workman, Past and Present* (Oxford,1928)pp30-1.

[43] Contemporary documents link the ploughing of pastures in Holdernes with the outbreak of rinderpest in the late 1740s.H.C.A.O.,DDKI 5/180 (1747) may be a similar example on the lower Wolds at Kilnwick.

[44] Information on sainfoin at Boynton is Contained in a letter dated 28 April 1732 among the Strickland famiy papers. I am indebted to Dr J.E.Crowther for a copy of this letter, the original of which is in private hands. The Ganton eperiments are described in Robert Dossie, *Memoirs of Agriculture and other Oeconomical Arts* (London1768)1pp.364-7 and in Young's *Northern Tour.*

[45] Henry Willoughby's Notebook, the Estate Office Birdsall; University of Nottingham Middleton MSS Mi Da l49, survey of Birdsall (1754,with later additions).

[46] North Yorkshire County Record 0ffice,ZDS XVll/4. The document is undated but is calendared as earlier than 1755.

[47] An entry in the Birdsall survey of 1754 records (under the date 1776) that when Burdale, a farm

The enlargement of the arable area was associated by many contemporaries, however, with an increase in the extent of ground devoted to corn. 'Labour used to be low', Charles Varley wrote of the Wolds *c* 1770, 'but since they enclosed and turned more land into corn it is risen almost equal to the lowland countries adjacent'.[50] For those farmers able to grow wheat successfully, an improving price offered encouragement even before the dramatic price rises experienced during the 1790s and subsequently. No less important for many local farmers, especially those on the high Wolds, was the fact that movements in the price of wheat were shadowed, at a lower level, by those of barley and oats. [51] 'The amount of rent was...of little moment', Charles Howard was to observe of events during the Napoleonic wars, 'when wheat was selling at 14s. per bushel, and other grain in proportion' [52] Although the evidence is patchy, it seems likely that difficulties experienced in the wool markets during the second half of the eighteenth century may have moved farmers in a similar direction, for while the price of wool rose markedly at the end of the century, it had earlier been depressed for lengthy periods.[53]

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on the estate was let from Lady Day 1777, the tenant was to keep the fences with the help of timber supplied by the estate, and 'if he plows up the Stfoin he is to lay it with Stfoin Seeds again. Young, *Northern Tour*, I,pp. 181,250 may have been correct in thinking that sainfoin was not widely grown by ordinary farmer on the Wolds, but numerous references to the crop *c*.1770 cast doubt on his claim that it was 'totally neglected'. Young himself draws attention elsewhere in the *Northern Tour* to the fact that the crop had been grown at Boynton for many years by 1770. Charles Varley also commented on its presence locally (Clarke,*op.cit*.,p.93). Sledmere, Warter and Wetwang are among places where sainfoin is known to have been cultivated during the 1740s and 1750s. HU.L.,DDCV 179/17 (Wetwang1747), contains an enthusiastic appraisal of the crop's potential.

48. H.U.L. DDSY 66/298(1795).
49. *Ibid*
50. Clarke *op.cit.* p94.
51. H.U.L.,DDDU 10/49, 10/51 (1780-1801); H.C.A.0. DDX 128/16 for prices received for wheat and other grains by a farmer on the low Wolds, c 1785-96. G.E. Mingay (ed), *The Agrarian History of England and Wales, VI 1750-1850* (Cambridge,1989, p.989, for grain prices in York1778-1822. Conditions earlier in the Century are desribed in J.V. Beckett' Yorkshire and the agricultural Depression,1730-1750', *Y.A.J.* ,54(1982) ppl9-23. The Warter estate, which is used as a case history in the article is there incorrectly assigned to the claylands of East Yorkshire rather than the chalk Wolds.
52. Howard *op.cit.* (1835),p.145.
53. H.C.A.0, DDX 128/15,128/16 (1784-1805) H.U.L,DDCV 179/21 (1760). For the background to the wool trade see J.A Perkins, *Sheep Farming in Eighteenth and Nineteenth Century Lincolnshire*, Soc.for Lincs History and Archaeology 4 (Sleaford 1977) pp.16ff.

In common-field parishes some conversion seems to have followed hard on the heels of enclosure, as old tillage was laid to grass and land elsewhere brought under cultivation but also to meet increased rents.[54] Land was pared and burnt and sown with rape in North Newbald during 1779, when enclosure was in progress but not completed.[55] During 1776, the year in which Christopher Sykes obtained an Act for the enclosure of Sledmere, plans were drawn up for a threefold increase in the area under cultivation there.[56] Such apparent haste must have been prompted by the pressures of the farming year and by the need to adjust as quickly as possible to the new circumstances. Potential difficulties were avoided in some places by ensuring that some vestige of the common fields survived, thus postponing until a later date the disappearance of old grassland. In Duggleby for example, where land as set apart at the enclosure of the township in 1765 for use as a common sheep pasture, it was to be 1806 before at least part of the ground in qustion was brought under cultivation.[57] A similar arrangement in Wold Newton ensured that for many years after the enclosure of 1776 the farms there were still referred to as lying in the Ings 'in the Field and on the Wold', these areas being valued for rental purposes in 1796 at I8s. 4s.6d. and 2s.an acre respectively.[58]

In many places, however, extensive sheep pastures continued to form part of the farms even where no special arrangments had been made for their use in common. The incumbent of North Dalton reported in 1801 that 'There is about the same number of acres in Grassing as in Tillage chiefly in Sheep Walks being Wold Land'.[59] North Dalton had been enclosed in 1779. The presence of sheep-walk may indeed have been as natural in these circumstances as the quotation implies, but it raises interesting questions concerning its age and character. This point will be discussed later.

Anciently enclosed places were singled out by Leatham as being particularly subject to 'havock by the plough'.[60] Events in Thirkleby are traced below and appear to fit Leatham's description admirably. Other places of a similar nature were certainly ploughed with considerable speed once the process had been initiated, although the consequences are less clear than in Thirkleby. When the manor of Kilnwick Percy was advertised for sale in 1783, its 1,561 acres were described as being 'chiefly in grase' but by 1795 only 123 acres were similarly recorded, the others being either under crop or lying fallow.[61] By contrast Arras was reclaimed from warren and sheep-walk over a lengthy period, beginning about 1773 but completed only in 1821-23.[62] In such circumstances it is worth examining the

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54. H.U.L. *Letter Book of Sir Christopher Sykes*,1775-1790pp.5-6 H.UL.DDSY(3) 4/44 Valuation of Sledmere (1776). As entries in the Letter Book show the Valuation of Sledmere for the years after the enclosure of 1776 assumed a large increase in the area under cultivation within the parish Rental value in Sledmere were expected to rise immediately after enclosure and the more slowly over a period of 15 years.
55. H.C.A.O.,DDH 57/272(1779).
56. H.U.L.,*Letter Book of Sir Christopher Sykes,*1775-1790,pp.5-6.
57. H.C.A.O. AH 40/2(1765);BC 324/535(1780);CK 283/478(1806).
58. North Yorkshire County Record 0ffice, ZDS XV11/7(1796); *V.C..H. York East Riding* 11(1974) p-300.
59. P R.0., H.0. 67/26(1801).
60. Letham op.cit.. p 42.
61. *York Courant,* 14 January 1783; H.C.A.0,DPX 84(1795).
62. H.U.L.DDCV 4/7(1842). The tenant of Arras, a large farm near Market Weighton, agreed in 1821 to pay his landlord 'five per cent by way of interest on whatever sum the Trustees shall expend in Inclosing this Farm'. Arras had long been held in severalty by the 1820s and the money was to be

attitude of landowners to the breaking up of grassland.

Young's comment that landlords were reluctant to allow tenants to convert warren because of their bad husbandry after receiving permission to do so is revealing although it tells only part of the story.[63] Newspaper advertisements and tenancy agreements indicate a variety of attitudes ranging from freedom to plough at will to its prohibition. Between these were many other arrangements whose purpose was to ensure that the owners' interest in a potentially valuable asset was realised in a controlled way.

Prospective tenants of Callis Wold, in Bishop Wilton, were informed in 1776 that they might 'lay down and plow up at pleasure' 220 acres of 'fresh land within the lease.[64] The owner of a farm at Market Weighton was more circumspect, pointing out in 1783 that the conversion of some 400 acres of grassland was subject to conditions.[65] Prospects of a different kind were offered by the sale of tithes in Thixendale in 1788.[66] Among the large acreage affected were 1,000 acres of old pasture, which would become subject to tithe in kind when converted. Farm leases provide further information. At Riplingham in 1786 the landlord's written permission was required before sheep-walk was broken up, but at Thixendale in 1770 30 acres could be cultivated before the tenant became liable to a penalty of £5 for each additional acre taken without permission.[67] The reclamation of Mowthorpe, one of the largest tenanted farms on the Wolds in the latter eighteenth century, was regulated between 1789 and 1813 by a series of detailed agreements setting out the procedures to be followed the fields to be broken in successive years and the crops to be grown. Provision was also made for the rent to increase from £930 in the earlier year to £2,500 in 1813.[68]

Despite such precautions critics alleged that when a conflict of interest arose between landlord and tenant, it was often possible for the latter to take advantage of inadequate covenants or inadequate supervision on the part of land agents. In a reference to covenants in leases, William Hall, an experienced land agent, expressed the opinion in 1788 that it was 'scarcely propable(*sic*) a tenant either can or does fulfill them all'[69] Things could indeed go badly wrong, even under the eye of a resident agent. In 1783 one of Lord Middleton's farms in Thirkleby was taken by a new tenant, one Thomas Cristelow, without a written agreement.[70] By the early months of 1787 according to Cristelow' own testimony, 'by far the greatest Part of the farm had been ploughed and 'by continual cropping so far reduced that it was of small Value'. Cristelow was taken to court by his landlord and fined £750 in costs and damages, although a public apology earned him some remission. Thirkleby contained only a handful of farms, of which Cristelow's was

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spent on subdividing the land ino fields and on improvement generally including a supply of water. H.U.L.,DDEV 56/44 (1824-5),58/178(1821-4),70/9(1823).

63. Young, *op.cit.* 1p.183.
64. *Etheringtons York Chronicle,* 12 June 1776.
65. *York Courant,* 14 October 1783.
66. *York Courant,* 6 May 1788
67. HU.L.,DX 23/2 (1770); H.C.A.O. ,DDHB 35/62(1786).
68. H.U.L.,DDSY 38/26(1789), 38/132(1792), 38/148(1788), 38/149(1798). 38/32(1803), 38/34(1813). Mowthorpe's 2000 acres were occupied as a single farm at this time. Further details will be found in A.Harris,'Two centuries of farming on the Yorkshire Wolds: Mowthorpe 1750-1950, *Journal* 10 (1984), North Yorkshire County Record Office Publicatios 35,pp.52-62.
69. H.U.L.,DDSY 38/148(1788).
70. *York Courant,* 20 March 1787.

probably the second largest in 1783. Apart from the speed with which the tenant was able to run down his holding, the most remarkable aspect of this particular episode is that Cristelow's neighbour, Samuel Milbourne, the largest farmer in Thirkleby, was Lord Middleton's agent at the time.[71] Middleton's evident determination to made an example of his tenant may have owed something to his own chagrin, for many years earlier, as Henry Willoughby, he had committed his views on estate management to writing:

> Md. Lay out ye best Disposition of Each Farm & then let it to good Tennants & make Articles with them & have a Careful Person view every part of ye Estate 2c [twice] a year & make a report in writing where they Err...always improving & at the least Expence...[72]

Even a written agreement was no guarantee that its clauses would be complied with, however, as experience on the Sledmere estate in 1812 was to show,[73] In that year a tenant in Kirby Grindalythe ploughed old swarth, ignoring a penalty of £50 an acre stipulated in his agreement for doing so without permission. The estate's response was to use the infringement to persuade the offender to accept new buildings on his farm.

Views differed as to which of the crops permitted by tenancy agreements were suitable for the conditions likely to be found on the Wolds 'I would by no means allow rape for a Crop', Thomas Duesbery was advised by his land valuer in 1802.[74] Rape was in fact grown extensively in the district on newly-broken turf both for feeding sheep and for its seed, from which oil was extracted. It was too demanding a crop, critics alleged, particularly when grown for seed and threshed in the field, when the residues were likely to be burnt on the spot instead of being converted into manure elsewhere.[75] Only a year before Duesbery received his advice, the tenants of Blanch farm in Warter had been allowed to pare and burn up to 300 acres of 'fresh' land in order to grow rape for seed as a prelude to other crops.[76] Rotations on Willerby Wold in Staxton during the period 1786-1791 included several in which rape was alternated with oats, barley or, in one case, with wheat as well as instances of oats being grown in the same field for up to four years.[77] In the absence of information about yields or manurial practice it is not possible to say more than that these rotations resemble those to which the agricultural reporters took exception *c* 1800.[78]

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[71] H.U.L., DDSY 70/126(1784). In 1783 Samuel Milbourne paid £8.12s.11d. and Thomas Cristelow £3.16s..5d. towards a total of £13 asessed for Land Tax in Thirkleby (HC. QD 1/3/34). An undated eighteenth-century survey among the Middleton papers at Nottingham University (Mi Da 125a), shows warren and sheep-walk in Thirkleby earlier in the century. An inventory of the possessions of George Walker, one of the tenants named in the Thirkleby survey, is dated December 1741 (B.I.H.R., probate inventories). Milbourne was party to a resolution adopted in 1794 by some of 'the first Wool Growers & Dealers in this Country' to establish a wool market in Malton (Sheffield City Archives,WWM F76a). I am grateful to Olive,Countess Fitzwilliam's Wentworth Settlement Trustees and the Director of Libraries, Sheffield for permision to see this and other material in the Wentworth Woodhouse Muniments.

[72] Henry Willoughby's Notebook, the Estate Office, Birdsall.

[73] H.U.L., DDSY 101/74(1812).

[74] H.U.L., DDDU 10/76(1802).

[75] Strickland, *op.cit.*, pp.141-2.

[76] H.U.L., DDWA 7/54(1801).

[77] H.C.A.O. DDHB 57/177(c 1791).

[78] Strickland, *op.cit.*,pp.107-8, footnotes.

In a rare direct reference to the problems that were likely to arise when land was over-cropped, George Britton, the agent at Sledmere, expressed in 1799 what must have been a widespread anxiety.[79] 'When land is over cropped' , he wrote 'which is the case at Croom, Turnips are doubtful, without which seeds cannot be easily procured so as to carry any quantity of Sheep stock'. Britton's remarks went to the heart of the matter, for by reducing their dependence on permanent grassland Wolds farmers had exposed themselves to the uncertainties of an evolving arable system which had yet to be sustained by reliable rotations and underpinned by adequate sources of fertilizer. The problem had been foreshadowed some twenty years earlier in correspondence between Luke Lillingstone, another Wolds landowner, and Christopher Sykes.[80] Lillingstone's opinion that there was no effective Improvement to be carry'd on upon the Wolds without Sheep' would no doubt have received the hearty assent of both Leatham and Strickland who argued that arable husbandry should be subservient to their needs. In the event some time was to pass before it became possible to say with assurance that, despite difficulties the new arable systems were capable of maintaining large numbers of both sheep and cattle on a sustainable basis.

Strickland's assertion that there had been some reversion to grass by the early nineteenth century and that there were fewer acres in cultivation in some places than 40 years earlier as a result of over-cropping is harder to test.[81] The practice of occasional cropping would make comparison difficult even were appropriate records available. Only a detailed study of individual case histories will show if the examples cited here are representative of what Strickland had in mind. In 1776, shortly after its enclosure, Painslack farm in Huggate was advertised to let with 650 acres of land 'properly subdivided for pasturing and plowing'.[82] In 1787, however, the occupier of Painslack was described as a warrener and the farm appeared in a list of commercial rabbit warrens published in that year.[83] Such warrens continued to be formed in the later eighteenth century, although less frequently than they were destroyed, and Painslack is not alone among those which appear somewhat unexpectedly some time after the enclosure of the parish in which they were situated.[84] The presence of large sheep-walks in enclosed township has been mentioned above, as has the creation of new pastures on old tillage after enclosure. It is often difficult to determine whether sheep pastures like those recorded at Garton on the Wolds in 1797, some twenty years after enclosure and extending to 870 acres on two farms were ancient, a creation of *c* 1775 or a response to the need to rest land.[85] Sometimes a reference to 'ancient pasture' may suggest that the grasslands in question have a long history but where land is said to be 'now a sheepwalk' a very different chronology is implied.[86]

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79. HJU L. DDB 101/66(1799).
80. HU.L.,DDSY 62/331(1776).
81. Strickland *op.cit.*, pll37.
82. *Etherington's York Chronicle*, 26 January 1776.
83. *York Courant*, 13 November 1787, 14 October 1788.
84. A warren on Goodmanham Wold may be another example (*York Courant*,14 October 1788).
85. H.C.A.O., DDHB 57/210 (1797-8) H.U.L.,DDSY 98/67(1775) shows purchases of clover and trefoil seeds for use at Garton on the Wolds at enclosure. H.A.C..O., DDHB 57/192(1794), 57/197(1795),57/199(1795), provide examples of sheep-walks attached to enclosed farms in Butterwick many years after the disappearance of the common fields there.
86. At Wharram-le-Street 32 acres were described in 1806 as 'now a Sheep Pasture', North Yorkshire

Conclusion

The process of turning grassland into arable ground on the Wolds was more complex than might be assumed from the comments of Tiffen, quoted earlier, or of numerous other writers for whom the Napoleonic wars provided a watershed in local agricultural history. Much grassland had been broken up by the 1790s, but with the passage of time this tended to be overshadowed by later events. Varley's generation, however, had associated the process with the enclosures of their own day and with the economic gain that might ensue. Similar considerations, expressed on the landlord side through rental income, applied also in anciently enclosed places, for while these were unlikely to have common rights that needed to be extinguished, they did require considerable capital investment in new fields and farm buildings to make them comparable with their neighbours.[87] In these places too the destruction of old grassland had begun before the 1790s.

That many pastures were ancient by the time they were ploughed is beyond question. Many were not, however, with the important consequence that much arable land was won from ground that had been tilled in the recent past rather than from 'maiden down'. Some of the newly-ploughed land had been outfield or warren, some was re-seeded sheep pasture, and some had been common-field tillage before being laid to pasture. These comments imply the existence throughout much of the eighteenth century of a complex geography of pasture land, both old and new. Given the circumstances, it is perhaps not surprising that attempts to use Wold land more intensively for grain production should sometimes have run into difficulty. Arable land may indeed have been relatively scarce on the high Wolds in the earlier eighteenth century, as a recent study has indicated, but a snapshot view is modified by the incidence of occasional and opportunistic cropping.[88] When pushed hard much Wold land betrayed its recent history.

Landlord and tenant alike committed mistakes, making the path of progress seem uncertain at the time. Both Leatham and Strickland attributed the mistakes to a combination of avarice and ignorance. The evidence suggests that they were right.[89] The more positive direction detected by Barbara English in farm agreements after 1815 may owe something to experience gained in these years, as well as to a new confidence in what was technically possible.[90] The fear that land might be exhausted by even two white crops grown in succession was to persist for many years, however, and was reflected in tenancy agreements. Robert Wyse, a Malton land agent, expressed the opinion in 1886 that Wold land 'was not fit for two white crops in succession' although in hard times and faced with the problem of clover sickness and the consequent breakdown of the four-course rotation, many

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County Record Office, ZPB III 6/2/3(1806). 'Ancient pastures' are recorded at the same period nearby (Maurice Beresford & John Hurst, *Wharram Percy Deserted Medieval Village* (London1990) p.116.

[87] Illustrated by events in Wharram Percy during the 1770s (Beresford & Hurst, *op.cit.*, pp.114-16.

[88] Joan Thirsk(ed), *The Agrarian History of England and Wales V(i),1640-1750* (Cambridge,1985),pp 59,74.

[89] Leatham, *op.cit.*,p.60 Strickland,*op.cit.*, p.106. For similar comments elsewhere see Joan Thirsk, *English Peasant Farming* (London1957),p.262; David Grigg, *The Agricultural Revolution in South Lincolnshire* (Cambridge,1966),pp.56,59-60,66.

[90] Barbara English, *The Great Landowners of East Yorkshire.1530-1910* (London,1990), pp.170-4.

Wolds farmers were then taking a second corn crop with the knowledge, and sometimes the encouragement, of their landlord.[91]

The events described in this paper were in at least one respect to prove of lasting importance. They underline the significance of George Legard's observation that old grassland had largely disappeared from many parts of the Wolds by 1848.[92] Much grassland was ploughed out on the Wolds during World War I and again after 1939, but if the interpretation presented here is correct then most of this, other than on the steepest slopes and roughest ground, is likely to have be created in the nineteenth century or later Even when times were more than usually difficult, however, permanent grass was never again to occupy a large area of the Wolds. On 35 farms covering a total of 16,842 acres during the period 1875-1895, only 3,536 acres (21.0 per cent) consisted of 'permanent' grass as defined in tenancy agreements and valuations. In the period 1896-1916 (33 farms,12,253 acres), the comparable figures were 2,466 acres and 20.1 per cent, while a sample of 35 farms for the years between 1917 and 1937 (12,927 acres), yielded a grassland percentage of 17.5.[93] The Wolds remain a district of almost unbroken arable cultivation devoted principally to cereal crops.

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[91] *Driffield Times*, 26 April 1884, 6 February, 13 February 1886 *Farmer's Magazine*, 52 (1877),p.244. See also W.Harwood Long' Some Farming Customs and Practices in the late 1860s: the Case of St.Quintin *v* Lett', *Agricultural History Review*, 23(1975), pp.78ff I am indebted to Barbara English for this reference As late as 1917 the agent of the Sledmere estate was asked 'to allow those tenants on the Estate who are desirous of doing so to take a second white crop' (*Mins.of Proceedings of the War Agricultural Executive Cttee, East Riding of Yorkshire,1917-1919*p.18). HC..A.O. has a copy of the printed Minutes. *White* crops are corn or grain crops.

[92] G.Legard, Farming of the East Riding of Yorkshire', *Jnl.Royal Ag.Soc.*, ix(1848), pl22.

[93] Based on surveys and valuations taken for purposes of insurance, taxation and tenant right. These were seen through the good offices of Messrs Boulton and Cooper (Malton), Messrs Cundall (Malton),Messrs Cranswick and Cranswick (Bridlington)Messrs Dee Atkinson & Harrison (Driffield) and Messrs R.M. English & Son (Pockligton). The Hebblethwaite papers in Hull City Record Office provided additional examples. For comments on grassland locally during the period covered by these surveys see A.D. Hall. *A Pilgrimage of British Farming* 1910-1912 (London 1913),p.119; W.W.Gatenby, 'Wold Farming in East Yorkshire', *Agriculture*, LV no.4 (1948),pp 152-3

YORKSHIRE AND THE GREAT PYRAMID

by Philip Atkins

A unique headstone in a quiet country churchyard provides an enduring reminder of an obscure but once curiously strong three-fold literal connection between England's largest county, and the largest building the ancient world.

In the churchyard of St. John's Sharow, one mile north east of Ripon, North Yorkshire, lie Charles Piazzi Smyth (1819-1900) and his wife Jessie, beneath a stone pyramid. It is a representation of the Great Pyramid of the tyrannical pharaoh Khufu or Cheops, to the study of which Smyth (pronounced as Smith) devoted much of his life, thereby tarnishing an otherwise eminent scientific career. Born in Naples the son of British admiral, William Smyth (1788 - 1865), (one of whose daughters would become the mother of Lord Baden Powell), his distinctive middle name was taken from his godfather, the Sicilian priest and astronomer who had discovered the first asteroid. The latter's wish that the infant should devote his life to astronomy was certainly fulfilled, for from 1845 until his resignation in 1888 Smyth held the post of Astronomer Royal for Scotland. In 1886 he had purchased a villa in Ripon for his impending retirement. Why Ripon has only recently been revealed in an excellent and long overdue appraisal of Smyth's life and work by a more recent holder of his former office, Professor H.A.Bruck.[1] Ripon was roughly midway between the English and Scottish capital cities, centres of contemporary scientific life, *and* close to York, then the home of a thriving optical industry. Smyth was also an indefatigable meteorologist and had decided that the local climate was particularly suited to his ailing wife Jessie, whose Aberdeenshire childhood gave rise to the name *Clova*, which is still cast into the gateposts of their former abode, now a residential home in Clotherholme Road, Ripon.

Newly settled in Ripon, Smyth produced the fifth and final edition of his book *Our Inheritance in the Great Pyramid* which had first appeared in 1864.[2] The following year Charles and Jessie made a visit to Egypt at their own expense in order to make a detailed survey of the structure. Smyth had already become an adherent of the British Israel movement, which believed the British race to be descended from the ten lost tribes of Israel, who came to be credited with the construction of the Great Pyramid, rather than the Ancient Egyptians! Early in the 19th century it was noted that its apparent fundamental unit of measure was a cubit which amounted to almost exactly 25 modern British Imperial inches. By measuring the Pyramid in so called Pyramid Inches (IP1.0016) all kinds of alleged relationships were derived, including a claim that, for example, the constructors knew precisely the mean distance between the Earth and the Sun, and the mean circumference of the Earth. Even more outlandish were the subsequent claims that the internal passages, taking one pyramid inch to be equivalent to one year, constituted a chronicle in stone of the history of Mankind, past present and future, including the Exodus and the Crucifixion. *After* the event, it was claimed that the *precise* dates of the beginning (4 August 1914) and end (11 November 1918) of the First World War were thus enshrined, at least from the British viewpoint!

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[1] H.A. Bruck and M.T. Bruck, *The Peripatetic Astronomer. The Life of Charles Piazzi Smyth*, Adam Hilger/IOP Publishing Ltd., 1988.

[2] C. Piazzi Smyth, *Our Inheritance in the Great Pyramid*, A.Strahan & Co., 1st Edition 1864; 5th Edition 1890.

A well established tourist attraction even by Roman times, the Great Pyramid was undeniably a most remarkable structure. Constructed at the beginning of the Fourth Dynasty c. 2600BC [3] and incorporating several million tons of masonry, the outer stones, while weighing several tons apiece, were so accurately dressed over their extensive flat surfaces that it was impossible to insert a knife blade between them. The incredible precision (even by modern standards) extended to the uniformity of the four 755 3/4ft. base lines, the right angles between them, and their orientation to the four cardinal points of the compass.

The popular belief that the pyramids in general were tombs is by no means certain, and likewise *how* they were built is still a mystery. The interior of the Great Pyramid also contained some remarkable features, which as already indicated gave rise to the most exotic theories which Smyth came to espouse. One indisputable fact which may or may not have been deliberate on the part of the builders is that the ratio of the height (originally 484 ft.) to the base circumference, is as the radius of a circle to its circumference.[4]

However to attempt to make prophecies regarding the future of the world in terms of the dimensions of the Pyramid (which still has its adherents today) was pushing scientific credibility too far. After being refused leave to address the Society on such matters, Smyth resigned in pique in 1874 from the Royal Society which had elected him a Fellow at the remarkably early age of 27. This had been in recognition of his outstanding contributions to observational astronomy and meteorology, but later Smyth also became a pioneer in the new science of spectroscopy. When visiting the Great Pyramid he had also experimented with igniting magnesium dust in order to photograph its internal chambers, and was an enthusiastic early photographer, and a consummate artist.

Smyth was also a prolific author in his own right, with an engaging style all of his own. In 1979 the writer was delighted to discover and purchase in a York bookshop one of Smyth's lesser works *On the Antiquity of Intellectual man* (1868) dedicated in its author's own hand with the compliments of the author, but sadly modestly lacking the embellishment of his signature. After losing his wife in 1896 Smyth devoted his declining years in Ripon to photographing cloud formations.

Shortly before his death on 21 February 1900 Smyth was repeatedly visited by one Moses Bruine Cotsworth from Acomb, York. Born in Willitoft on 8 December 1859 Cotsworth had joined the North Eastern Railway in York as a goods clerk at the age of fifteen. He later left the NER to become successively a canal and then a

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[3] I.E.S. Edwards, *The Pyramids of Egypt*, Pelican Books, Harmondsworth, 1947; revised edition 1991.

[4] K. Mendelssohn, *The Riddle of the Pyramids*. Praeger Publishers 1947.

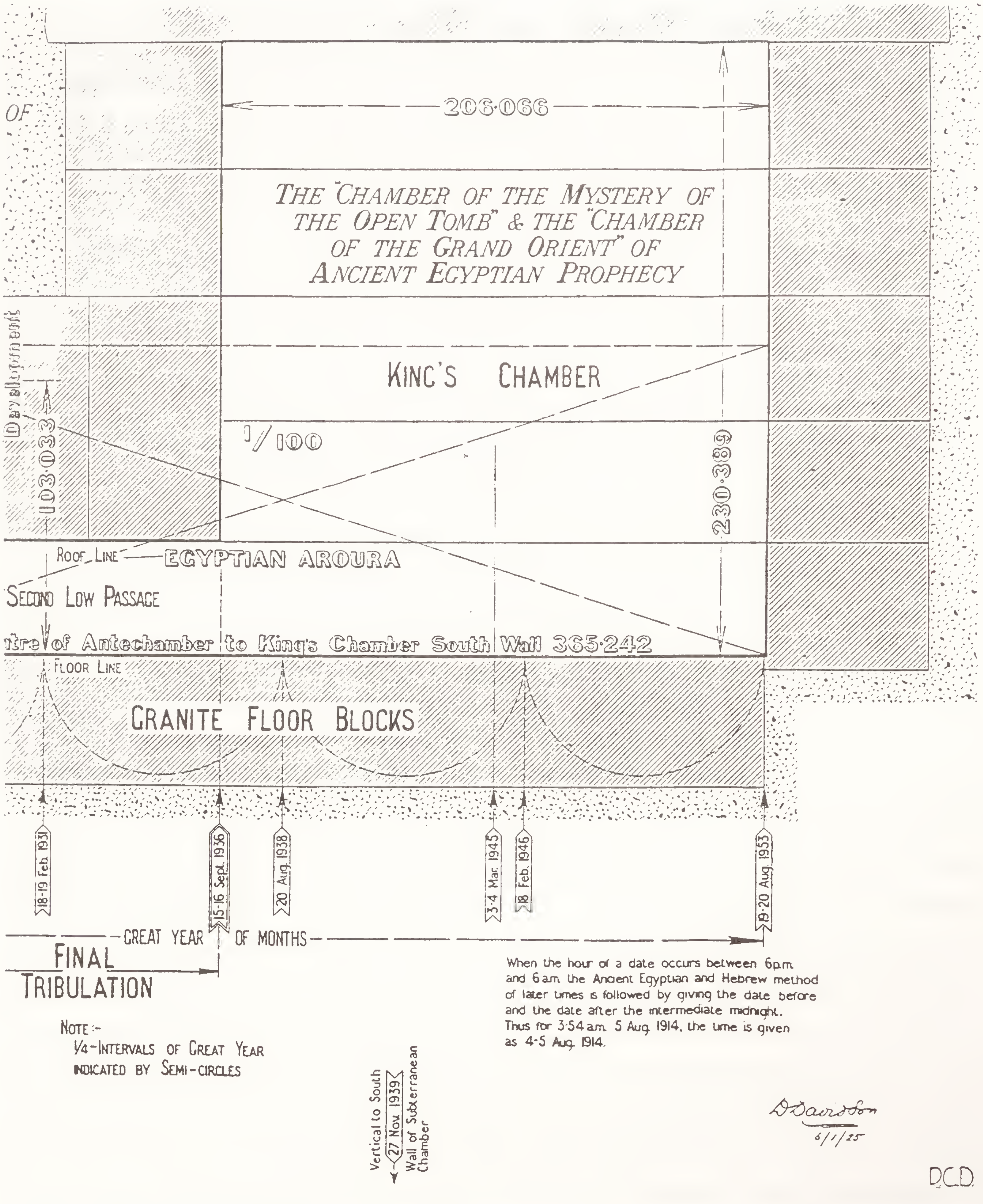
OF
206·066
THE "CHAMBER OF THE MYSTERY OF THE OPEN TOMB" & THE "CHAMBER OF THE GRAND ORIENT" OF ANCIENT EGYPTIAN PROPHECY
KING'S CHAMBER
1/100
Development
103·033
230·389
ROOF LINE
EGYPTIAN AROURA
SECOND LOW PASSAGE
tre of Antechamber to King's Chamber South Wall 365·242
FLOOR LINE
GRANITE FLOOR BLOCKS
18-19 Feb. 1931
15-16 Sept. 1936
20 Aug. 1938
3-4 Mar. 1945
18 Feb. 1946
19-20 Aug. 1953
GREAT YEAR OF MONTHS
FINAL TRIBULATION
NOTE:- 1/4-INTERVALS OF GREAT YEAR INDICATED BY SEMI-CIRCLES
When the hour of a date occurs between 6p.m. and 6a.m. the Ancient Egyptian and Hebrew method of later times is followed by giving the date before and the date after the intermediate midnight. Thus for 3·54a.m. 5 Aug. 1914, the time is given as 4-5 Aug. 1914.
Vertical to South
27 Nov. 1939
Wall of Subterranean Chamber
D Davidson
6/1/25
DCD

Fig. 1. Part of Plate IXVc, facing p. 390 of *The Great Pyramid. Its Divine Message*, 2nd Ed., 1925.

colliery manager, during the course of which he produced some ready reckoners for the timber trade. Cotsworth rejoined the NER as a research statistician in 1892, as this leading British railway soon became a pioneer of the use of statistics in order to monitor its own performance and efficiency.

Of an eminently practical turn of mind Cotsworth had no interest in the interior of the Great Pyramid, but considered its function to be a huge time measuring device, effectively the gnomon of a gigantic sundial. In October 1900 Cotsworth purchased most if not all of Smyth's records at auction and the following month set sail for Egypt. One evening he sat nearly 500ft above the desert at the summit of the Great Pyramid observing the setting winter sun casting a huge shadow which visibly moved across the desert. He believed that the Pyramid not only marked the passage of time during the day, but the passing of the seasons with remarkable precision, which was vital to an agriculturally based economy, dependent upon the annual flooding of the Nile. (Cotsworth even believed his native city of York owed its origins in the centre of a wide plain to the fact that from it the continually changing rising and setting points of the sun could be observed against the silhouette of the Pennines and the North Yorkshire Moors respectively). Cotsworth's findings were published privately by him in York in 1904 in *The Rational Almanac*.[5] Originally born out of sympathy for shop workers, here also he propounded his plan for a complete reorganisation of the calendar whereby a given date would always fall on the same day of the week. This was to be achieved by incorporating an un-named non-day, preferably to be accommodated between December 22 and 23 (with two such in Leap Years) and by the adoption of thirteen 4-week months, the additional one to be named *Sol* and inserted between June and July. Cotsworth travelled extensively abroad lecturing on this topic, receiving much encouragement. He recommended that a worldwide transition be made in 1916 but regrettably the world by then was somewhat preoccupied with other matters.

However, after the First World War he was Director of the International Fixed Calendar League and Expert to the League Or Nations' Committee on Calendar Reform during 1922—31. In 1907 Cotsworth had been recruited as an adviser to the Government or British Columbia here he spent the remaining years or his life He became a friend of George Eastman, the founder of Kodak, an enterprise which internally adopted (and which has only in recent years abandoned) Cotsorth's 13 x 4 week calendar (which was also employed by the administratively American-orientated LMS Railway in the UK) In later life an authority on climatic change, Cotsworth died on 4 June 1943 in Vancouver, where forty years later two of his five children were still living.[6]

Yorkshire's connection with the Great Pyramid only briefly lapsed after Moses Cotsworth's emigration to Canada Four years later a young Glaswegian, David Davidson, was appointed by the City of Leeds Corporation as resident engineer at their expending sewage works at Knoesthorpe or Knostrop, hard by Knostrop Old Hall, the latterday home of the selftaught Victorian painter of nocturnes, Atkinson Grimshaw. Born in 1884 Davidson as a qualified structural engineer, and a confirmed agnostic In 1902 he was consulted in a professional capacity about the possible connections between the structure of the Great Pyramid and astronomical phenomena, by members of the British Israel movement. Prominent amongst these was Dr. Herbert Alder Smith, a Horsham GP, many years his senior, whose elaborate theories Davidson simply could not accept. Davidson thereupon spent several years endeavouring systematically to disprove them, in the process, to his own amazement finding himself becoming more convinced as to their validity! He began to write articles on the lost tribes of Israel in Scottish periodicals In 1909, and had already begun a long co-operation with Dr. Aldersmith (his preferred name for literary purposes) prior to his arrival in Leeds.

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[5] M.B. Cotsworth, *The Rational Almanac*, published by the author 1904

[6] L. Schaaf, Charles Piazzi Smyth's 1865 Conquest of the Great Pyramid, *History of Photography* 3 (4), October 1979, pp. 331-354.

Davidson was commissioned with the 15th Field Company of the Royal Engineers and awarded the military Cross for gallantry Dr. Aldersmith died in March 1918, and after the Armistice Davidson continued their grand thesis on the Great Pyramid alone at his home at 7 Bainbrigge Road in Headingley, Leeds. In 1921 he began to give public lectures, and in 1923 resigned from his municipal post leaving his Great George Street office setting up in private practice in Park Square near the centre of Leeds. Towards the end of August of that year he commenced work on his magnum opus *The Great Pyramid, It's Divine Message,* which actually appeared under the joint authorship of himself and the late Dr. Aldersmith.[7] This truly monumental tome, weighed 21b apiece, and ran to 560 pages of text, contained 70 plates, and 67 tables, plus numerous illustrations. It must have constituted some kind of publishing record for the first edition emerged just inside one year, in July 1924! Ultimately 12 editions, containing only minor amendments, were produced, totalling around 17,000 copies in all.

This work, which still occasionally surfaces in second-hand bookshops, is so elaborate as to almost defy description. In it, however, Davidson propounded one very interesting theory complementary to that of Cotsworth, of whom he appears to have been totally unaware. For his part, from his writings it is clear that Cotsworth did not realise that as built, the Great Pyramid was ensheathed in a highly polished white Tura limestone casing, which had been dislodged by a severe earthquake in the 13th century AD, and which was thereafter systematically plundered to provide building materials for nearby Cairo. *Davidson* suggested that as built, in addition to casting ever changing shadow patterns around its base, the Great Pyramid could have also reflected triangular patterns of light Furthermore it could have protected dazzling and sharply defined beams of reflected sunlight up into the sky rendered visible by atmospheric dust in a manner discernable over long distances, thereby very accurately marking the passing of time both on an hourly and a seasonal basis for the benefit of agriculturalists in the fertile Nile Valley.

During 1929-1930 Davidson presented two papers on the Great Pyramid to his professional body, the Institution of Structural Engineers, not making Smyth's error of attempting to incorporate his own personal esoteric beliefs.[8] In one paper he estimated that it would have occupied a workforce of 100,000 men (who would not necessarily have been slaves) 21 years to build the Great Pyramid. This would have been conducted on a seasonal basis, taking advantage of the annual 3 month flooding of the River Nile to transport 2,300,000 stone blocks, averaging $2^1/_2$tons each but sometimes weighing as much as 10 tons, from distant quarries on barges.

By the early 1930s Davidson was regularly giving an annual address in the Philosophical Hall in Leeds advising as to the immediate moral and economic prospects of the British nation in terms of the alleged prophetic qualities enshrined in the masonry of the Great Pyramid. In March 1933 he proclaimed that

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7. D. Davidson and H. Aldersmith, *The Great Pyramid. Its Divine Message*, Williams and Norgate Ltd.,1924.
8. D. Davidson, Structural Aspects of the Great Pyramid, *Journal of the Institution of Structural Engineers* 7, July 1929, pp. 243-266; August 1929, pp. 293-316.
9. D. Davidson, Pyramid Building Problems, *Journal of the Institution of Structural Engineers* 8, March 1930, p. 87-103; April 1930, pp. 144-154.

the British responsibility for upholding the world order would end in 1936, when 'our protection begins a period of drastic world changes immeasurably more severe than any that the British economic world order has yet experienced'.

Davidson does not, however, appear to have foreseen the Second World War as such, early in which at the invitation of British-Israel World Federation after 30 years residence in the city he departed from Leeds to work full time at its London headquarters. Latterly living in Chiswick, David Davidson died in the Royal Masonic Hospital, Hammersmith on 10 June 1956, nearly three years after the date on which he had predicted twenty years previously that the world would come to an end following the final removal of divine protection.

A FRAGMENT OF DECORATED LATER NEOLITHIC POTTERY FROM WEST GREAT CLOSE, MALHAM, NORTH YORKSHIRE

by J. A. Gilks and T. C. Lord

The fragment of pottery which forms the subject of this note was found by one of the authors (TCL) whilst walking around the north-eastern edge of Malham Tarn in 1987. The find-spot, a molehill, was c. 190 m from the Tarn itself and within a roughly triangular area of open ground, its boundary defined by a public footpath on the south, a wood on the west, and on the north by a section of path, possibly part of the ancient trackway known as the Monk's Road (Nat. Grid Ref. SD 89876718; altitude 410 m OD).

The site is a relatively sheltered one being very much protected to the east by the rising slope of Great West Close and to the south-east by the massive Carboniferous Limestone outcrop of Great Close Hill, which reaches a height of 465 m OD. The soil cover at, and to the north-east of, the find-spot is a shallow scree rendzina (Bullock, 1971, 391-92).

Description

Fragment of rim, pointed with steep external bevel and a shallow concave neck, in a hard fabric, very dark grey (7.5YR N3/) inner and outer surfaces, very dark grey (7.5YR N3/) to dark greyish brown (2.5Y 4/2) core; traces of a calcareous deposit on the rim bevel, in the neck and immediately beneath the inner edge of the rim, stained brown (7.5YR 5/4). Rough, generally irregular in fracture but with some rounding of irregularities, tempered with abundant, medium to very coarse (up to 6 mm), ill-assorted, subrounded to subangular, limestone. Decorated on the external rim bevel and below the inner edge of the rim with a herring-bone pattern executed with a round-ended instrument and possibly fingernail, the latter immediately below the inner right-hand edge of the rim; in the neck traces of either incised herring-bone or, just possibly, lattice.

Comment

This small fragment of rim is undoubtedly derived from a round-bottomed open-shouldered bowl, with a maximum rim diameter of 200 mm. The rim form is common to bowls in both the Ebbsfleet and Mortlake styles of Peterborough ware, as is the herring-bone and incised lattice motifs, the herring-bone generally being executed in whipped cord in the Ebbsfleet style, and in twisted or whipped cord, incision or fingernail, or a combination of these techniques, in the Mortlake.

Though the West Great Close bowl clearly exhibits a number of Ebbsfleet style traits, it is almost certainly attributable to the Mortlake style. This ascription is based on the very hard dark grey, indeed almost black, limestone tempered fabric, which is very similar to that of two Mortlake style bowls from Sewell's Cave, Settle (incorrectly illustrated in Raistrick, 1936, 201, Fig. la, 2a; Gilks, 1989, 13-14), and

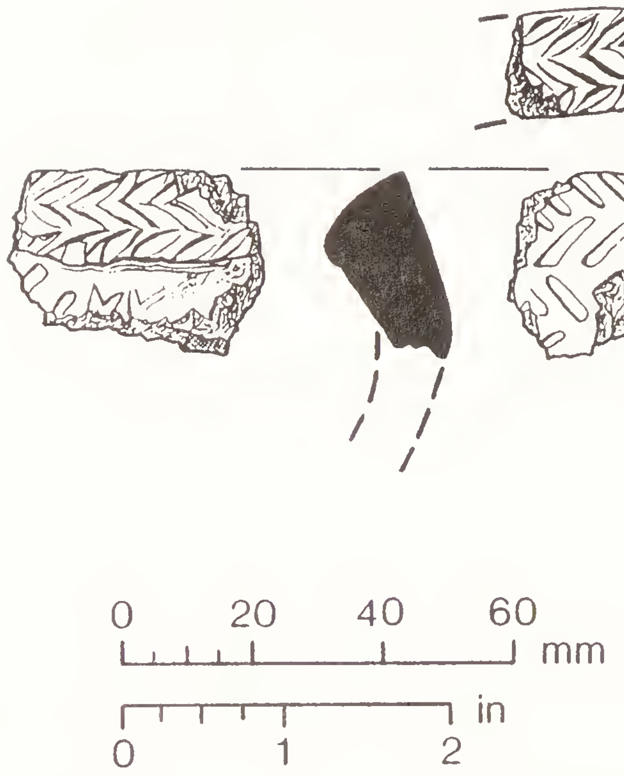

Fig. 1. Later neolithic bowl from West Great Close, Malham.

the combination of decorative techniques, that is incision and fingernail, to produce simple motifs which possibly occupied most, if not all, of the bowl's outer, and certainly part of the inner, surface.

On the strength of external comparative evidence obtained from both domestic and funerary sites in especially southern and eastern England and a series of radiocarbon determinations, the bowl can be confidently dated to the second half of the third millennium bc.

As far as is known the West Great Close bowl is the first find of later neolithic pottery to have come from a probable; surface site, and not as had been exclusively the case in the past a cave or rock shelter, on the Carboniferous Limestone. Such a claim is, perhaps, supported by the discovery of many fragments of polished stone axes, all apparently belonging to Group VI, immediately to the west and south-east of the bowl's find-spot, and of a considerable number of transverse and leaf arrowheads, and of other types of later neolithic flintwork, in the same areas (Williams, *et. al.*, 1987, 380-82). Interestingly Raistrick has reported the finding of a number of polished stone axes and axe fragments, again attributable to Group VI, on Lea Green, Grassington (Raistrick, 1937, 171-74, Figs. 3 and 4), which is located 10 km to the east of West Great Close.

In conclusion it can probably be said that the artefactual evidence obtained from, and around, West Great Close and Lea Green, and which is augmented by a series of important discoveries made in a number of caves in the vicinity of West Great Close, attest to the widespread exploitation and settlement of the Craven limestone during especially the later neolithic (*c.* 2700-2000 bc). That groups were actively clearing the limestone of its woodlands and scrub is surely demonstrated both by the finding of large numbers of axes and axe fragments and by palynological data. Thus the overall picture seems to be one of small scale clearances progressively developing into larger ones and within which open settlements were presumably established. It is within this broader framework that the West Great Close bowl should be considered.

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A FLINT AXE FROM ALDRO, EAST YORKSHIRE

by Colin Hayfield and T.G. Manby

An edge-polished flint axe (Fig. 1) was recovered on September 26th, 1991 from the ploughed surface of a field on the High Wolds at Aldro, East Yorkshire (SE 812631 as part of the fieldwalking programme of the Wharram Research Project. Apart from its considerable intrinsic interest, the axe is significant in having been recovered from the soil directly over the remains of a plough-damaged round barrow. Although the Wold barrows have produced an impressive array of worked flint objects, flint axes appear to be a rarity. J.R. Mortimer complained that of the many barrows he had excavated, he had come across just three such axes (Mortimer 1905, 190), only one of which (found amongst the Towthorpe Group compares with the quality of this 'Aldro Axe'.

The field (Fig. 2) lies along a major boundary alignment and supposed prehistoric trackway that runs from Aldro Farm, close to the north-western escarpment of the Chalk, eastwards past Sledmere towards the coast. It is an area rich in the remains of round barrows, and this 140 acre field contain the ploughed out remains of seven tumuli along with the impressive earthworks of 'Aldro Rath', one of the best surviving round barrows on the High Wolds. All eight barrows were investigated by Mortimer in the late 19th century (Mortimer 1905) and this axe was recovered from the shallow slopes of barrow C77 about 2m from its centre point. The field had been sown with winter wheat about six weeks earlier and by this time had weathered sufficiently to leave the field surface a whitish colour, carpeted with the rainwashed fragments of the natural chalk and flint. Such a weathered surface provides the ideal conditions for fieldwalking on the Wold (Hayfield 1980). The barrows from this field are part of Mortimer's 'Aldro Group'. Barrow C77 forms the westernmost of an apparent row of three (including C80 and C78). Mortimer carried out excavation on all three and reported that C77 measured 60 feet (18.3 m) in diameter and 3 feet (0.9m) in height. He found no grave, but instead the remains of two bodies disturbed through earlier excavation by the Yorkshire Antiquarian Club in the 1850s (Mortimer 1905, 73). The barrow produced minimal finds, but included a jet slider, a barbed arrow head, and a small, fairly crude, flint knife blade. The other two barrows had also been subject to earlier excavation, and Mortimer again found little of apparent interest in them. The position of this flint axe on the slope of C77 suggests that it probably derived from this barrow, arriving on the surface from the spoil of either excavation or perhaps being unearthed by the action of the plough in recent years. Indeed the size and fine condition of the axe makes it unlikely perhaps that it had spent many seasons being churned amongst the ploughsoil.

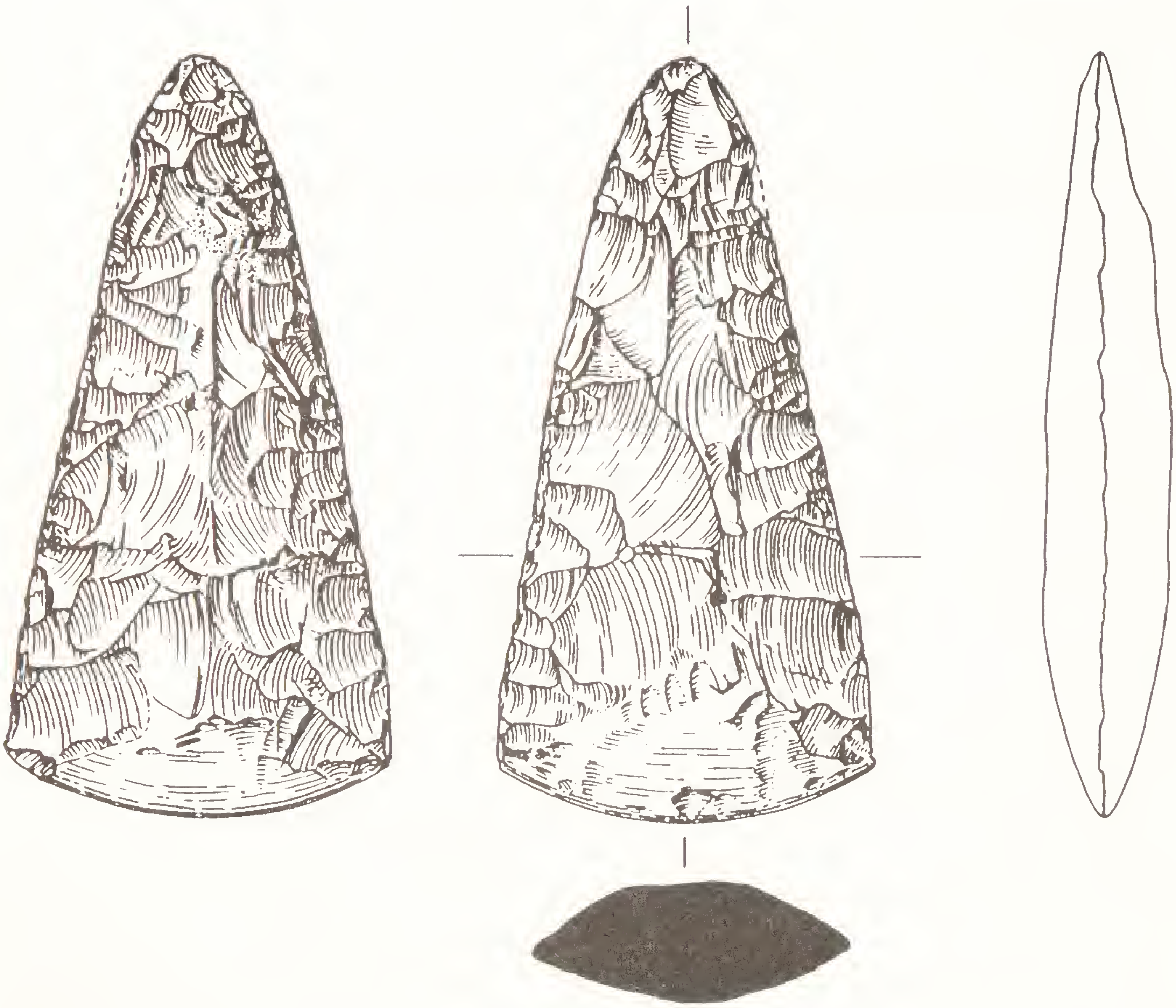

Fig. 1. An edge-polished flint axe.

The axe itself is perfect save for a recent, tiny chip along its upper edge. It measures 105 mm from blade to point, and 53 mm at its widest. The blade of the axe has been carefully polished and still retains a surprisingly keen edge. The chipped area shows the core of the flint to be a dark bluish-grey, but the surfaces of the axe have now patinated to a creamy white or whitish-grey, similar in colour to much of the natural flint fragments on the field surface. The intrinsic interest of the axe and its parallels are discussed below.

The Aldro Axe in its Regional Context by T. G. Manby

The Aldro Axe blade is notable for its triangular outline; from the wide cutting edge its straight sides converge acutely to the rounded butt; it has a thin elliptical section (Fig. 1). In a typological classification of Yorkshire stone and flint axes finds it can be assigned to Type 3 Narrow Butted axes of class D edge-ground (thin profile) (Manby 1979, 68-9, Fig. 2 & 4). associations in the York Holgate hoard (Radley 1968) demonstrates the contemporary nature of thin-profiled flaked and edge-ground flint axes of Type 3 with the broad butted Type 2, including its specialised 'Seamer' variety. The term 'edge-polished', might distinctively be applied to those artefacts whose faces above the cutting edge received further finishing to produce a glossy surface.

Edge-ground flint axe blade finds have been numerous from eastern Yorkshire,

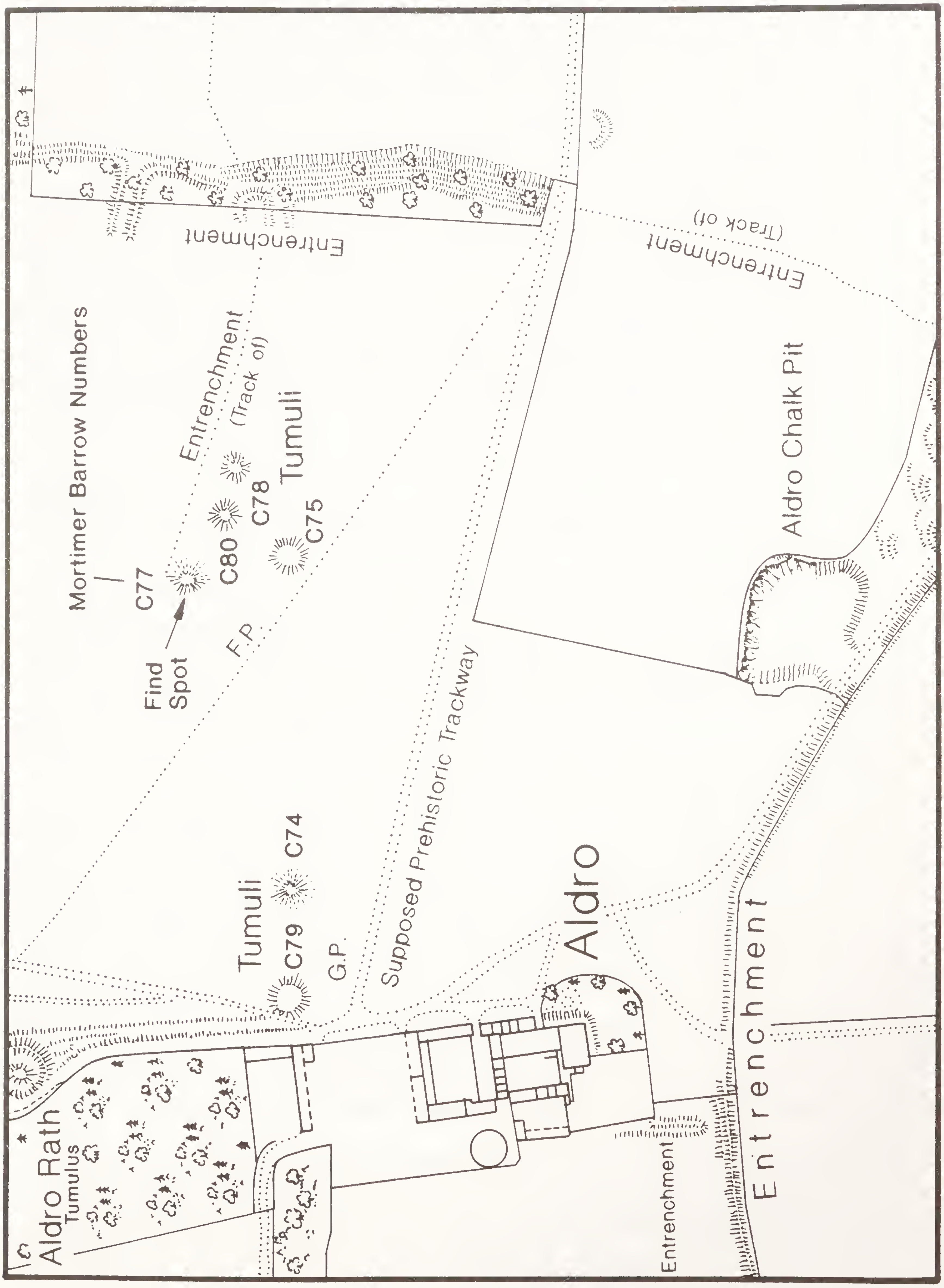

Fig. 2. The location of barrows near Aldro, Birdsall, E. Yorkshire.

with recoveries concentrated on, and adjacent to the calcareous soils of the Wolds (Manby 1979, 77). However, from the western wolds finds of edge-ground flint axes are relatively few in comparison with the locally numerous ground stone axe types. In common with other regions of the British Isles the vast majority of complete axe blades have been recovered from the surface of modern cultivated land. Flint and stone axes from recently excavated Neolithic occupation features in eastern Yorkshire consist of mainly broken fragments and struck flakes (Manby 1979, 79-80; 1988, 76-85)

The majority of barrow associated axe finds come from the mound structures comprising broken fragments and, occasionally, some complete blades. Like the sherds, flint working debris and burnt stones are also found in mound material; these represent a residual content already in the soil utilised in the barrow construction. The deposition of flint or stone axes as grave goods was not a common practice until the major cultural changes of the Late Neolithic that characterised Burgess's Meldon Bridge period (Burgess 1980, 37-62) with a series of single-grave inhumation burials in round barrows (Kinnes 1979). With these were deposited thin profiled edge-ground polished flint axes of Types 2 and 3, and the well finished 'Seamer' variety of the former and the related 'Duggleby' adzes. The axes are one element of a suite of prestigious items deposited as grave furnishings that include polished and edge-polished flint flake knives and jet sliders (Manby 1974, 92-100).

This burial series is typified by the grave goods accompanying the inhumations at Duggleby Howe (Mortimer 1905, 23-42, Fig. 45-66). A rectangular polished flint knife accompanying Duggleby Burial D can be paralleled by an even larger version, made by completely rubbing down a broad flake, from Aldro Barrow C75 (Mortimer 1905, 74, Fig. 156-60). This accompanied one of a pair of inhumation burials laid together at the centre of the barrow, the second having an edge-polished flake knife (Manby 1974, Fig 36. 2; 37. 16).

Barrow C77 is sited immediately north of the Barrow C75 (Fig. 2), and it is possible it too covered a similar, well furnished, Late Neolithic burial. Unfortunately Mortimer did not record the extent of the Yorkshire Antiquarian Club's trench or its relationship to a jet slider he found a little north of the centre in the quantity of dark soil '12 inches' below the contemporary surface (Mortimer 1905, Fig. 73, Fig. 154). The extent of his own trenching is unknown, also to what extent his workmen were supervised in removing infill of the earlier investigation. Any relationship between the axe and jet slider and the burials at Barrow C77 can now only be circumstantial. But a grave goods association finds support in the slider and an edge-polished flint axe that accompanied the secondary burial in the Whitegrounds Barrow, Burythorpe, 6 km, northwest of Aldro (Brewster 1984, 10, Fig. 23.).

The Aldro C77 axe is not of the specialised 'Seamer' variety represented at Whitegrounds, but is comparable with that associated with a pit and skull burial at Bridlington (Earnshaw 1973, 23, Fig. 12, 63). Also the pair of axes found with the cist burial at Liff's Low, Biggin, Derbyshire (Kinnes 1979, Fig. 18.7). There is a longer axe in the more distant find from Greenbrae near Cruden on the Aberdeenshire coast, with jet and amber collared beads but no recorded burial (Kenworthy 1977, 85-6).

The distribution of jet sliders is centred on eastern Yorkshire, extending both north into western Scotland and southwards to the Thames Valley and Wiltshire. Unlike the Whitegrounds jet slider, the Aldro C77 slider belongs to the shorter Group 1 series (McInnes 1968, 137, Fig. 29. 6) and find its closest parallels in the Group I sliders from Linch Hill at Stanton Harcourt, Oxfordshire, and an unknown Wiltshire site (McInnes 1968, Fig. 29. 4 5). The Linch Hill burial was also accompanied by a polished flint flake knife, and it predated an E-Beaker accompanied burial with a bone ring pendant and tanged and barbed arrowheads (Grimes 1960, 154-164, Fig. 64 67). The same type of pendant was associated with a pair of AOC Beakers and a child's burial excavated by the late T. C. M. Brewster at Folkton on the Yorkshire Wolds (Kinnes Longworth 1985, 116). These associations serve to confirm the pre-Beaker date of the burial series characterised by jet sliders, polished flake knives and (thin profiled) edge-ground flint axes. The Aldro axe can be therefore assigned to the regional Later Neolithic 1 Duggleby) Period 3000-2750 B.C. before the advent of early series Beakers (Manby 1968, 38).

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YORKSHIRE AND THE GODODDIN POEM.

by Craig Cessford

The Gododdin poem consists mainly of a series of elegies commemorating warriors from the kingdom of Gododdin in south-east Scotland which was based at *Eidyn* [Edinburgh]. Though supposedly composed in the late sixth or early seventh centuries by the poet Aneirin it is in fact much more complex, being a compilation of many different elegies and containing a number of other poems and later interpolations.[1] In addition the Gododdin only survives in a single thirteenth century Welsh manuscript and the mechanisms by which it was transmitted from Scotland to Wales and how it survived for over six centuries prior to being written down in this manuscript are poorly understood. Nonetheless it does appear that the poem possesses a genuine historic core and is a valid source of evidence for the early Medieval period though one presenting numerous difficulties. Although the Gododdin poem mainly honours warriors from the kingdom of Gododdin it does contain material relevant to Yorkshire. In particular it seems to mention Catterick and the kingdoms of Deira and Elmet, all of which are located in Yorkshire.

Many of the warriors praised in the Gododdin died at the battle of *Catraeth* which has unusually been equated with Catterick (Jackson 1969, 83-4) or nearby Richmond (Jones 1975,12). The idea that the battle of *Catraeth* was fought at the site of Richmond Castle has recently been comprehensively demolished (Clarkson 1993) which just leaves Catterick. There have however always been dissenters from the equation of *Catraeth* with Catterick which has been described simply as “at best a philologist’s guess” McDiarmid 1983, 5). The most recent view is that the placename Catraeth means battle crossing/bank/shore’ (Hamp 1993) and given the frequency of river battle in this period (Alcock 19 78, 422) it may actually have been a quite common placename. The very frequency of such river battles would however tend to mitigate against such placenames surviving for long, they would presumably have been temporally lasting only as long as the memory of a particular battle was current and then reverting to the previous placename. If this is accepted then there is no reason to place *Catraeth* in Yorkshire.

The enemies against whom the battle of *Catraeth* was fought are usually taken to have been the Anglo Saxons of Northumbria In fact there is very little evidence for Anglo-Saxons in the Gododdin poem and the few references to Anglo Saxons probably represent later Welsh interpolations or alterations (Cessford forthcoming). The Gododdin manuscript was written by two different scribes usually referred to A. and B. Although scribe B wrote after A he used an earlier ninth or tenth century manuscript source which makes his work more reliable. David Dumville has recently pointed out that while the text refers to enemies from both Bernicia and Deira the B text only mentions Deira (1989, 216). If this were so then it would imply that the Gododdin's enemies came from Yorkshire and suggest that it was composed prior to the unification of Deira and Bernicia in 617 A.D. Examination of the manuscript however shows that whilst the A text of the poem uses terms such as *Deifr* and *Dewr* which unambiguously mean Deira the B text uses *Deor*. *Deor* could be an archaic form of Deira but equally it could alternatively mean 'bold'. The locations of the term *Deor* in the poem provide no help as either Deira or bold make sense in the contexts that it occurs. It is therefore plausible that the Gododdin poem in its earliest stages did not refer to Deira and that all the references to Deira and Bernicia represent later Welsh additions.

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[1] For recent discussions see Cessford (1992/93), Huws (1989), Jarman 1988) and Roberts (1988).

If there is no evidence that the battle of Catraeth was fought in Yorkshire or against men from Yorkshire does the Gododdin poem contain any references to Yorkshire? Some of the warriors eulogised in the poem came not from Gododdin but were allies from other kingdoms (Jackson 1969. 27-28). The poem refers to the warrior Madog five times in verses A.ll, A XXXI, A+BLXIX and B.XCVI. It is reasonable to assume that all these warriors are the same person, though it is not impossible that there was more than one individual of this name. In verse B.XCVII he is described as madauc eluet (Williams 1938, line 1179) which translates as Madog from Elmet, a small British Kingdom in Yorkshire (Taylor 1992). The poem provides no detail concerning Elmet but does allow us to deduce some things about Madog. Verse B.XCVI describes him as a shield-bearer who was steadiest in battle and fought at Catraeth Jarman 198, 60 63). Other verses also praise his martial prowess and describe him as wearing a brooch [A.II], fighting with a shield [A.II] and living in a tent [A.I and A+B.LXIX]. The references to tents [*pebyll*] are particularly interesting as Madog is the only warrior who is linked to it. Pebyll is derived from the Latin papilo 'butterfly' which was the Roman soldiers' nickname for an eight man tent so Madog's may have been similar to reconstructions of Roman military tents based on evidence from Vindolanda (van Driel-Murray 1990). Kenneth Jackson argues that pebyll are mentioned because "When the army bivouacked, tents were used, probably by the chiefs alone" (1969,31). This does not however explain why these are originally mentioned in association with Madog. When the poem refers to accommodation it is normally *cyntedd* or *neuadd* which are large timber halls. By contrasting Madog's *pebyll* with these halls the poet is probably trying to make a deliberate point. It has been suggested that tents as were used on Anglo-Saxon royal sites because of temporary accommodation shortage(Welch I 99", 131-3) and it is likely that the same held true on similar Celtic sites. The Gododdin poet may therefore be suggesting that Madog was a homeless refugee reduced to living in a tent. An obvious historical context for this would be the period after 6l7A.D when Elmet was conquered by Edwin of Northumbria.

The interpolated verse Dinogad's Smock mentions the *ravadyr derwennyd* (Williams 1938. line 1114) or falls of the river Derwent. Whilst it is true that there is a river of this name in eastern Yorkshire (Jackson 1969, 6) the river in question is probably another Derwent in Cumbria Cessford 1994).

The traditional view that the Gododdin poem concerns a battle fought in Yorkshire against enemies from an Anglo-Saxon kingdom in Yorkshire is not supported by the evidence, however, the poem does refer to the British warrior Madog, an ally from the kingdom of Elmet in Yorkshire. As such he should join his more well known compatriot Aliortus the Elmetian who is commemorated on a fifth or sixth century inscription from north Wales (NW; 1950, no 87) as one of the few British individuals we know of from Yorkshire during this period. Ironically we only know of both these individuals because they left Elmet and lived in Scotland or Wales. If they had not done so it is unlikely that we would have any evidence for their existence as the post-Roman British inhabitants of Yorkshire have rightly been described as invisible (Whyman 1993).

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AN ANGLO-SAXON SITE ON THE YORKSHIRE WOLDS: A FURTHER NOTE

The numerous finds, mostly of metalwork, from an occupation site of the 8th-9th century have been reported by David Haldenby in Vols 62, 64 and 66 of this Journal. Its exact location was not, however, revealed in order to protect it from unauthorised disturbance. Recently Dr Julian Richards, who directed a trial excavation there in 1994, has identified the site more exactly in a note published in *Medieval Archaeology* 38 (1994), pp. 228-9. The Editor, who has known the location since 1990, feels that readers should now be told what those who study *Medieval Archaeology* already know. This site is close to Burrow House Farm (SE 975667) south of the road from Sledmere to Bridlington (B1253) in Cottam parish, $2^{1}/_{2}$ km west-north-west of the deserted village of Cottam. Paddock Hill, Thwing, 7km to the north-east,was occupied during the same period, possibly as a royal administrative centre, and King Aldfrith of Northumbria died at Driffield, a royal estate, on 14 December 704, and may have been buried there.

The range of finds from Burrow House resembles, but is less rich and varied than those from the site at Flixborough, Lincolnshire, excavated in 1988-91 and thought to be probably monastic. However the site at Burrow House is on an exposed chalk ridge, 156m above sea level, while Flixborough is on a low-lying sandy site east of the River Trent. Contemporary and similar finds from Brandon, Suffolk, come from a sand island beside the Ouse and may also represent a monastic presence. For further details see Leslie Webster and Janet Backhouse (eds), *The Making of England. Anglo-Saxon Art and Culture. A.D. 600-900* (British Museum 1991, pp. 81-88, 94-100; Alan Vince (ed.), *Pre-Viking Lindsey* (Lincoln 1993) pp. 82, 83, 87.

A RENAISSANCE INTAGLIO FROM WAKEFIELD, WEST YORKSHIRE

by M.Henig and M.Hall

An intaglio which for over 30 years has been assumed to be Roman can now be assigned to the late Medieval - early Post Medieval period, thanks to its examination by Dr. Martin Henig, Institute of Archaeology, Oxford. The intaglio is cut from a mottled stone : opaque, pale green in colour with black inclusions. It is a slightly convex ovoid in shape and measures 25.5mm x 19mm x 2.75mm (see plate 1).

The intaglio was found in 1958 by Mr. H Speak, of the Wakefield Historical Society 'In the gravels near the Pugneys'[1] Wakefield (S.E. 332 185). In 1960 Mr. Speak lent the intaglio to Wakefield Museum and it is listed in the relevant Report to Committee as 'A Roman Intaglio c.500 A.D. found in Pugney Brook, Portobello, Wakefield'.[2]

In 1971, the intaglio was published by Mr. Speak and said to be of Egyptian Diorite, and fourth or fifth century in date.[3] In 1981 the intaglio was published in a survey of the county's archaeology, as a Roman find indicating a possible unknown site. It was included in the West Yorkshire Sites and Monuments Record with a basic description and a proviso that its present location was unknown[4].

On the 27th July 1992 Mr. Speak converted the loan into a gift and the intaglio entered the permanent collections of Wakefield Museum with the number HHW.1992.22. Further research was initiated on the intaglio with a view to clarifying its iconography and dating. In 1993 it was submitted to Dr. Martin Henig (Institute of Archaeology, Oxford) whose initial reaction that it was not Roman led to it being sent to the Natural History Museum for scientific analysis. The three stage process it went through identified the mineral as antigorite of the serpentine group. This mineral occurs widely in Europe, (including Britain) and in America, Asia, Australia and Africa.[5] This ruled out the possibility of the mineral not being accessible during the Roman period. Dr. Henig[6], after studying the

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1. H.Speak and J.Forrester, *An Outline History of Wakefield.* (Ossett,1971), 11.
2. *Report No 2/1960 of The Director, City Art Gallery and Museum, to Library, Art Gallery and Museum Committee, City of Wakefield.* 10th February 1960, 1.
3. Speak and Forrester, op.cit.in n.1. A recent communication from Mr Speak included the recollection that the intaglio was identified by the British Museum.
4. M.Faull and S.A.Moorhouse (eds), *West Yorkshire : An Archaeological Survey To A.D.1500* 4 vols, *(Volume 1 : ' Sources, Environment and the County to A.D.1066*, p.164) (Wakefield,W.Y.M.C.C. 1981).
5. I am indebted to Dr. Terry Williams, Dept. of Mineralogy, Natural History Museum for his willing and considerable help. Initial optical microscope examination was followed by Qualitative analytical scanning electron microscopy and finally by X-ray diffraction analysis.
6. The work of Dr. M.Henig has been invaluable in the re-assessment of this intaglio. Thanks are also due, for the accompanying photograph, to Robert Wilkins (Institute of Archaeology, Oxford). I am also grateful to David T.D.Clarke for his comments and transport.

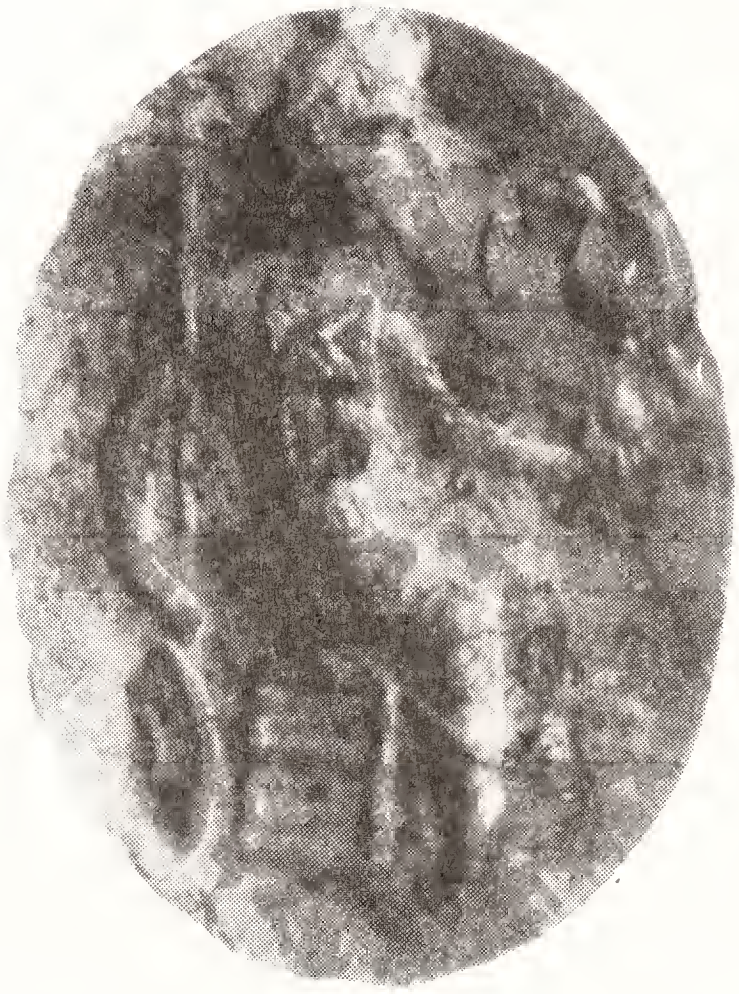

Plate 1. Magnified view of Renaissance Intaglio from Wakefield

intaglio, writes: 'The device is an enthroned figure in profile to the left (impression described) wearing a breastplate and also a long garment reaching to the ground, showing that the subject is female. In her right hand she holds an eagle with wings displayed standing upon a globe and her left hand supports a shield and spear. Despite the fact that it is not easy to discern a helmet on the figure's head it is probable that Roma was intended.

Neither the iconography nor the manner of cutting are those of Roman glyptic art, nor for that matter of eighteenth-century neo-classicism which revived the style of antiquity.[7] They belong to the late Renaissance (end of sixteenth-early seventeenth century) when the canons of classical art were not always so well understood. The fanciful breastplate and the curved left arm are entirely characteristic of this period.

A firm indication of date for the style is given by a cornelian intaglio, clearly not an ancient gem, from amongst the unset stones in the early seventeenth-century jewellery hoard from Cheapside, City of London, showing a standing woman holding a branch, a spear and shield at her feet. Other comparanda are cornelians and lapis lazuli cut in the same disorganised style to be found in Gorlaeus's collection assembled in the Netherlands in the late sixteenth century. It should, incidentally, be noted that mottled stones, agates and lapis lazuli were popular choices for intaglios[8].

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[7] For typical Roman-period intaglios showing the goddess Roma see M.Henig, *A Corpus of Roman Engraved Gemstones from British Sites* (BAR, British Series, 8, 2nd ed. Oxford, 1978), nos 249-251, App, 88, App, 130.

[8] London Museum, *The Cheapside Hoard of Elizabethan and Jacobean Jewellery*, (London Museum Catalogue No2, 1928), 28 and pl.xi,1 no A.14270; See M.Maaskant-Kleibrink, *Description of the Collections in the Rijksmuseum G.M.Kam at Nijmegen x The Engraved Gems* (Nijmegen, 1986), p.xii for the dating of lapis gems.

Although I have no precise parallel to the Wakefield intaglio, close comparison may be made with a stone of about the same size, an intaglio of greyish pink chalcedony in Cambridge showing Roma (here wearing a short tunic and holding a victory). In addition three blundered portrayals of the same figure in lapis lazuli in Bologna should be noted.'[9]

How the intaglio came to rest at Pugneys remains unresolved. Its find spot is near a loop in the river Calder and close to an old established trackway which runs between the river and Sandal Castle (which is approximately one mile away) to reach Wakefield. Such a location implies a casual loss but when and by whom? Was it lost during the sixteenth-seventeenth century? (by a resident of the area? by a passing traveller? by a visitor to Sandal Castle?[10]). Alternatively was it lost at any time from the eighteenth to mid-twentieth century by either a passing traveller, a tourist, a collector or a soldier?

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9. D.Scarisbrick in M.Henig, *Classical Gems : ancient and modern intaglios and cameos in the Fitzwilliam Museum Cambridge*, forthcoming, no 708; A.R.M.Bizzarri, *La Collezione di Gemme del Museo Civico Archaeologico di Bologna* (Bologna, 1987), nos 284-6.
10. The occupiers of Sandal Castle in the 16th and 17th century are discussed in P.M.Mayes & L.Butler, *Excavations at Sandal Castle 1964 - 1973* (Wakefield Historical Publications, 1983), 5-6 and J.W.Walker, *Wakefield its History and People*, (Wakefield, 1939), 2 vols., 2nd ed, 409-410.

WILLIAM HARWOOD LONG

William Harwood Long, an international authority on agricultural economics and member of the Yorkshire Archaeological Society for over twenty years, died peacefully on November 28th, 1995, aged 93.

Harwood Long, the elder child of William Henry and Emily Gertrude (née Harrison) Long, was born in 1902 in Bugbrooke, Northamptonshire, where his father was the tenant of the Manor Farm, from 1901 to 1940. His landlord was his brother-in-law, Ernest Harrison, the Rector of Bugbrooke. Quite exceptionally for that period, during the whole of his tenancy, William Henry Long kept detailed records which have survived in fourteen carefully compiled notebooks. Harwood Long's lifelong interest in agricultural economics, especially in relation to smaller farms, was doubtless inspired by his father's example.

Harwood Long attended Northampton Grammar School and subsequently, while working on the family farm, he took evening classes with a view to gaining university admission. In 1921 he was accepted by St. John's College, Oxford, to read agriculture and obtained his B.A. in 1924. He stayed on for a period at the Oxford Institute for Agriculture and gained the Oxford Diploma in Rural Economy.

In 1924, under the Advisory Scheme of the Ministry of Agriculture and Fisheries, he was appointed Advisory Economist for the South West Province of England. This post was held in association with Seale Hayne Agricultural College in Devon. His work there involved the collection and interpretation of agricultural cost accounts, the methods of agricultural surveys and other branches of farm economics. The reputation he gained at Seale Hayne led, in 1935, to his appointment as Ministry Advisory Economist for the Yorkshire Province. This post was associated with the Department of Agriculture, Leeds University, where initially he had the status of university lecturer. In addition to extensive advisory duties for the Ministry he was also responsible for teaching economics to the agricultural degree students and initiating the Leeds postgraduate diploma in farm management. Later he was promoted to Principal Agricultural Economist and Senior Lecturer and became Head of the Agricultural Economics section of the Department of Agriculture. He combined academic leadership with a real and practical interest in the welfare of his staff. He retired from Leeds in 1968.

Although Harwood Long's work as an agricultural economist was concerned primarily with contemporary agriculture, he regarded the historical development of agriculture as very important and this was reflected increasingly in his writings. From 1948 onwards he contributed papers to *'Agriculture'* and the *'Journal of Agricultural Economics'* and also was active as a broadcaster and reviewer on agricultural topics. His several books were concerned with aspects of farming in Yorkshire. The first, *'Farm Life in a Yorkshire Dale'* (W H Long and G M Davies, 1948) gave a detailed description of farming in Swaledale at that date. In 1958, he produced *'The Small Farms of Industrial Yorkshire'*, a collection of essays by members of his department to which he contributed the Introduction and Historical Background.

In 1960 he published a pioneering article in the *'Agricultural History Review'* entitled 'Regional Farming in Seventeenth Century Yorkshire'. This article which used information from probate inventories to identify and characterize the different farming regimes followed in Yorkshire at that period is still very useful to local historians. It is interesting that when in 1969 he published his major book, *'A Survey of the Agriculture of Yorkshire'* one of a series of volumes commissioned by the Royal Agricultural Society of England, he was able to use almost the same regional divisions in his descriptions of contemporary farming practices.

Harwood Long was President of the Agricultural Economics Society in 1962 and his Presidential Address 'Agricultural History and Agricultural Economics' showed the importance which he attached to historical studies. His membership of the Yorkshire Archaeological Society was another expression of this. He was a frequent attender at meetings and served on the Council from 1981 to 1984. Between 1976 and 1979 he was acting Honorary Secretary of the Georgian Group and was active in reviving interest in this section particularly by the interesting programmes of visits to country houses which he was able to arrange through his extensive knowledge of the landed gentry. He was also involved in the establishment of the journal *'Northern History'* and was on the committee of the British Agricultural History Society.

In his retirement he developed an interest in the history of his own family and produced, with the assistance of members of the family, a substantial work on 'The Harrisons and Longs in Bugbrooke'. This combined genealogy with a detailed account of the economics of the farm at Bugbrooke. Probably his last publication in a national journal, written when he was 77, was an article on 'The Low Yields of Corn in Medieval England' (*Economic History Review,* November 1979) which considered the reasons put forward for low yields and advanced his view as a practical farmer that the effects of weed infestation had not been given sufficient weight.

To his friends and above all to his family Harwood was warm, generous and supportive. Even when he was 90 it was a joy to lunch with him and hear his views on issues of the day which he advanced with engaging forcefulness and twinkling humour. Not infrequently one's hospitality would be further rewarded by a gift of biscuits or cheese straws that he had baked himself.

Harwood's wife, Helen, whom he married in 1929, died in 1968, the year of his retirement. His sister, Mary, died in April 1996, aged 92. He is survived by two sons, six grandchildren and eight greatgrandchildren. Although he had many interests including gardening, bridge and the Yorkshire Agricultural Adventurers it was in his large and loving family that he found abiding joy.

DEREK and MOIRA LONG.

BOOK REVIEWS

Steven Burt and Kevin Grady, *The Illustrated History of Leeds.* Breedon Books, Derby, 1994; 272 pp, incl. many illustrations. £16.95

Nobody should be discouraged by the title of this solid book; it is not a pictorial history, but a general historical survey, pertinently illustrated by reproductions of maps, diagrams and numerous black and white illustrations (which are unfortunately not numbered or listed, and some of which could easily have been more fully captioned). Messrs Burt and Grady, well-known and enthusiastic local historians, have courageously produced a most informative work of synthesis. To judge by their bibliography they seem to have read everything that is already in print (including some obscurely published items); they have made particularly good use of papers in that treasure house of work on Leeds and district, the *Publications of the Thoresby Society* (of which Mr. Burt is currently president); and they have drawn effectively on local records, directories and guides, working into their text at appropriate points the fruits of their own original researches. The field they have covered is large, but the authors are in control of their material, which they present in a clear, matter-of-fact style.

The book is sensibly arranged in eight chronological chapters, from medieval to contemporary Leeds. Thus the reader can readily gain an impression of what Leeds was like at different periods, a particularly valuable feature in a book which seeks to draw much disparate and specialised material into a coherent whole. Not that this is too generalised a work: far from it. Each chapter comprises six or eight thematic sections, chosen to highlight what was important at the time. Thus the medieval chapter includes: origins; the manor, manorial administration and the fields; the early borough; the Church and Kirkstall Abbey; the wealthier townsmen. The 'pillars of Victorian society' are identified as local govemment; public order; social institutions; schools; churches and chapels; recreation and culture; 'improvement'.

Throughout, the main emphasis is on social and economic history, with much interesting detail on topography. Inevitably there are gaps, and sometimes one feels that individual topics could be more closely related to each other to make the 'total history' advocated by Asa Briggs. It is, however, a strength of the book that some will question the interpretations and judgements offered by the authors, and that where gaps in knowledge exist Messrs Burt and Grady do not seek to fill them with fanciful suggestions or unsupported assertions. Finally, the authors' decision to devote approximately one fifth of their text to the city's twentieth-century history provides both a sound conclusion to a very useful book and a stimulus to further work in the comparatively neglected field of the history of Leeds since it achieved the status of a city in 1893.

University of Leeds *G.C.F. Forster*

Janet Burton, *Kirkham Priory from Foundation to Dissolusion*, University of York, Borthwick Paper 86. Yorks: 1995. 21 x 15 cm. 36 pp. 1 map. Price £3 (plus 35p postage and packing, from Borthwick Institute, York: YO1 2PW)

The romantic ruins of Kirkham set beside the fast-flowing Derwent as it cuts a gorge through the Howardian Hills is a well known site but its history has until now been almost neglected. This thorough study by Dr. Janet Burton fills the gap: she shows the Augustinian priory in its relationship with other Yorkshire houses of the order and with the major Cistercian abbey of Rievaulx When there is no surviving chronicle narrative and no official accounts or rentals then the task of writing a balanced history is much more difficult. The information has to be sought from documents in which Kirkham and its priors play a minor role.

In consequence those episodes where the documentation is fuller receive greater prominence. These are the initial endowment of land by Walter Espec, the early intention to transfer Kirkham to Cistercian rule as a daughter of Rievaulx, the literary activities of prior Maurice, the faults discovered in the community during the archbishop's visitations of 1280 and 1314, and in the circumstances of the Dissolution of 1538. Wills and court cases both before and after the Dissolution give a vivid picture of the priory's appearance, its economy and its sense of brotherhood in adversity.

There are only three typographical errors and few footnotes seem gratuitous, and a list of priors could have been given, benefitting from the considerable research since the Victoria County History volumes were published. However Dr. Burton is to be commended for writing a fluent and sympathetic monastic history in which persons rather than economic trends occupy a central position.

Lawrence Butler

C.E. Challis, W.R. Childs and J.Taylor (eds), *Northern History XXXI. Essays in Honour of G.C.F. Forster,* School of History, University of Leeds, 1995; pp. 318, ills 4. £18.

Colleagues and former pupils of Gordon Forster have contributed essays to honour his career and achievements, appropriately forming a volume of the journal which he has edited since its inception in 1966. That career, apart from six years at London and Sheffield, has been wholly spent at Leeds University, which has acknowledged his outstanding contribution to historical scholarship by making him a life Fellow. Members of the Yorkshire Archaeological Society, who know Gordon only as an active President and wise Vice-President, will not be surprised that he has also held office in the Chetham, Surtees and Thoresby Societies, as well as making several contributions to the Victoria County Histories. Maurice Beresford and W.B. Stephens have provided an account of his work in Leeds and beyond, while the bibliography of his publications, compiled by Mary Forster, runs to seven pages.

The contents of this volume range from pre-Conquest Northumbria to modern journalism and are mostly concerned with Yorkshire topics, but include four on Cumbria and Northumberland. Ian Wood writes on contacts between Northumbria and the Franks in the age of Wilfrid, Glanville Jones on estates, such as Tidover and Yeadon, given to Wilfrid in Northern England, and Peter Sawyer considers the chronology of Olaf Sihtricson and Erik Bloodaxe, the last Scandinavian kings of York. John Taylor returns to the origins of the Anonimalle Chronicle, concluding that the monks of St. Mary's Abbey, York, took over a French narrative which had probably originated at Byland. Barrie Dobson discusses Archbishop Rotherham's educational patronage at Cambridge University, Lincoln College, Oxford, and at his own foundation, Jesus College, Rotherham. Joan Kirby considers the Plumptons, a knightly family, in the fifteenth century, and Wendy Childs introduces readers to the episode of the seizure of the *George* of Beverley by Olav Olavesson, a pirate captain from Bergen but operating from Scarborough.

The Elizabethan and Stuart periods are represented by four essays. Christopher Challis deals with relations between York and London goldsmiths over regulation of the sterling standard. Richard Spence narrates the problems of Henry, Lord Clifford (later Earl of Cumberland) in the Bishops' War with Scotland in 1639. As lord lieutenant of Cumberland, Westmorland and Northumberland, sheriff of Westmorland and governor of Carlisle, he perforce played a prominent part in the military preparations but was let down by the king and thwarted by the Howards. C.B. Phillips considers the corporation of Kendal under Charles II and David Hey illustrates Nonconformity in South Yorkshire by studying the family of Rich of Bullhouse in Thirlstone, where Elkanah Rich built a chapel near his manor house.

The nineteenth and twentieth centuries interest six contributors. J.D. Marshall considers the alleged proclivity of Cumbrian farmers to have children outside wedlock; D. Fraser deals with Edward Baines, M.P., editor of the *Leeds Mercury*, called by Cobbett 'The Great Liar of the North'; E.D. Steele discusses Lord Salisbury, the Tory prime minister, and northern audiences for his political speeches; Norman McCord writes on change in the North-East, especially new industries and commerce in Newcastle; S.J.D. Green provides an article on 'Christian manliness' and the Nonconformist tradition in West Yorkshire; finally Donald Reed studies the importance of Reuters News Agency to the *Manchester Guardian* from 1858 to 1914.

The reader who comes to *Northern History* through this varied and lively collection of essays will want to read and study the earlier volumes and so come to appreciate Gordon Forster's consistent and firm editorship and join with many others in gratitude for his work. Considerable though that is, this is not even the beginning of the end, as Beresford and Stephens remark, for he is still preparing three major studies of Chester, Leeds and York.

Ronald Butler

Claire Cross and Noreen Vickers (ed.) *Monks, Friars and Nuns in Sixteenth Century Yorkshire.* Yorkshire Archaeological Society Record Series vol. 150 (for 1991 and 1992). Leeds 1995 xxii + 684 pp 1 plate 3 maps. Price to non-members £39 (£32 to YAS members). ISBN 0 902122 72X.

Professor Cross and Miss Vickers have provided a detailed biographical register of more than a thousand religious men and women, in the abbeys, friaries and nunneries of Yorkshire both before and after the Dissolution, of 1536-9. Inevitably before the Disolution it is usually the heads of houses the ordained priests (1480-1538) and the miscreants who receive most attention; after the dramatic expulsions the register includes all those former religious who were awarded regular pensions or who can be traced from clerical institutions, resignations wills and probate deeds. The editors have indicated the difficulties they have faced in tracing the former religious and acknowledge the debt they owe to earlier workers on this theme in Yorkshire and further afield.

This volume provides the essential raw data that can be quarried for social and economic information, whether it be upon the participation of former monks in the religious life of York, the gentry status of Yorkshire prioresses, or the continued sense of brother-hood among the former monks of Kirkstall, Roche or Monk Bretton. It can indicate the reluctance of former monks to marry or of former friars to abandon academic pursuits. It can emphasise the steadfast commitment to the religious life among the Carthusians and by contrast the willingness of the majority to accommodate their lives to the changes within the sixteenth-century religious and political climate. Some of these themes are highlighted in the editors' valuable introduction.

The only fault seems to be the idiosyncratic treatment of printed sources in the abbreviations and references: the author's name will be mentioned for a book but not for an article or an edition. The hope that this volume can serve as a useful basis for further study is certain to be fulfilled. Cross and Vickers for Yorkshire will stand alongside Hodgett for Lincoln diocese as an essential work of reference upon the Tudor ex-religious.

Lawrence Butler

Ian Jones, *Brass Bands in York 1833-1914*. University of York Borthwick paper 85 York 1995. 21 x 15cm. ii + 38 pp. Price £3 (plus 35p. postage and packing, from Borthwick Institute, York Y01 2PW).

The author has successfully transformed his fascinating facts about the brass bands of York into a minor episode in the social history of Victorian and Edwardian leisure activities. From their origins as two election party bands in 1833 noisily drumming up support for Whigs and Tories into an acceptable recreational activity with at least 7 bands by 1900 makes an interesting essay. The part played by competitive consumerism in providing printed sheet music, a standardised line-up of hand instruments and the discipline of uniforms is developed here together, with the paternalistic middle-class patronage allied to 'respectable' working-class support. The availability of greater leisure and spare cash among the industrial artisans of York after 1890 hastened the rise of brass bands, some associated with the railways and Rowntree's Cocoa Works. What the author could have explored more fully is whether the patronage of the large employer was altruistic or concealed a subtle advertisement of producer and product.

Lawrence Butler

J.M. Lilley, G. Stroud, Dr. Brothwell and M.H. Williamson, *The Jewish Burial Ground at Jewbury* (The Archaeology of York 12/3). 288pp. 105 illus. ISBN 1 872414 50 8. Council for British Archaeology for York Archaeological Trust 1994. Price not given.

The Jewish burial ground at York was a *cause célébre* of British Archaeology in the early 1980's. What were the ethical restrictions which could be imposed by an outside party on an excavation? How far should religious belief interfere with scientific analyses? The judicious introduction and positive conclusion by Peter Addyman indicate the difficulties under which the Trust had to operate. What emerges from this volume is a fairly full excavation report of about half the medieval burial ground and its coffins, but a rather more limited analysis of the skeletal remains of the Jewish population of York, and perhaps of Lincoln).

The great advantage is that we have all the information together in one monograph rather than spread between three, as the fascicule system requires. We can refer easily from the excavation data to the coffin ironwork and the antler shroud pins, and then to the anthropology and the pathology. There are no microfiches, only the three fold-out plans (in strong back-cover pocket) which can be spread out alongside the text. Common sense has prevailed. The text is clearly laid out, the site photographs are of high quality and effective use is made of colour in the plans. The only error is that the captions of figures 187 and 188 have been transposed.

The rescue conditions of the excavation meant that the upper levels were machined off which destroyed some shallow burials and also diminished the stratigraphic evidence. As a result this burial ground was largely a single deposit with few internal phases discernable. Usually there were definite rectangular grave-cuts with hardly any overlapping or intercutting. This implied a high degree of cemetery organisation with clearly marked rows and identifiable graves. No memorial stones were found and there was little evidence for marker posts. All the burials were on a north-south alignment with heads to the south most with arms extended at the sides of the body; the majority were in coffins and there were no grave goods. It seemed that there was a special area set aside for child burials, and possibly an area for males. There were six outlying burials, distinguished by different burial postures and alignments: these might be outcasts such as suicides or apostates.

There were over 500 burials and about 90 are discussed. This represents about half the burials of the York Jewry in the period 1177-1290 and suggests a colony of about 260 people. It was not possible to identify any burials from the 1190 massacre nor to differentiate the burials from the Lincoln settlement, though various suggestions are made based on site location, method of burial with bound limbs, distinctive coffin fittings or the type of wood (oak rather than the usual Scots pine coffins). For nearly 4 burials it was possible to determine the age at death. There were almost equal numbers of male and female and and a similar age-at-death pattern. Compared with the Christian population of York the Jews were shorter in height, more prone to anaemia, but the females lived longer than their Christian contemporaries.

From this report it is possible to recreate the history of this burial ground and to compare its evidence with other sites in western Europe. Despite the research difficulties this is the only detailed study of a medieval Jewish population within England. However the circumstances of reburial mean that there is now no opportunity to check data, to re-examine by new methods or to compare this material with future Christian or Jewish skeletal material. Bernard Levin wrote of this excavation, "if these bones lie at peace civilisation may surely rest" This may be true in modern York, but seems less applicable in Hebron or Gaza.

Lawrence Butler

Jonathan Lumby, *The Lancashire Witch-Craze: Jennet Preston and the Lancashire Witches 1612,* Carnegie Publishing, Preston, 1995. xxi + 212 pp. £6.95

Though it focusses on the Yorkshire witch Jennet Preston (Gisburn lay just inside the West Riding, which gave Jennet the dubious distinction of being tried and hanged at York rather than Lancaster), Jonathan Lumby's book is essentially a re-telling of the well-known story of the Lancashire witches of the Demdike and Chattox broods. As such, it adds little new, and conveys an impression of repetitiousness.

But the story is fully and fairly retold, and I incline to agree with the salient points of Lumby's thesis, for example that the examining magistrate Roger Nowell's own background in puritanical protestantism predisposed him to discover witchcraft in the confused ramblings of simple and ignorant folk which will bear a less sinister interpretation; that the 'witches' were singularly unfortunate in appearing before a hanging judge of awesome reputation, anxious to gain the approbation of a king who had also sired the prosecutors' manual *Daemonologie*; and that when Jennet's 'victim' repeated her name in his death throes, he was calling to be near him a woman he loved, not denouncing the one who had bewitched him - the darker interpretation was allowed to gain favour to spare the feelings of his humiliated wife and embarrassed family.

The more important aspect of Lumby's book is the weaker. He realizes that Pendle Hill was the fascinating safe haven beneath which sheltered all kinds of religious heterodoxy, chiefly Catholic recusancy, and its diametrical opposite, a pneumatological and antinomian puritanism, possibly having connections with Familism, and in one of its manifestations centred upon the chapelry of Grindleton. Instead of doing full justice to these topics, however, some of Lumby's later chapters wander from the point, as they seem to cast around for anything, however remote, to connect with the area under review.

Lumby suspects that the Devices (the Demdike brood) were influenced by both Catholicism and Grindletoninsm. The two are incompatible, though not perhaps at this level of ignorant folk garnering misunderstood bits of religion from a ragbag of sources. The gathering (not 'sabbat') at Malkin Tower on Good Friday afternoon took place when catholic folk would expect a time of religious observance, which the established Protestant church had denied them. Possibly, but catholic folk would not feast at it on stolen mutton, and the timing is probably merely coincidental. The catholic folk met, Lumby confusingly suggests, for Alizon Device's Anabaptist or Seeker-inspired 'baptism in the Spirit' (not, as Nowell supposed, for the naming or identification of the young witch's familiar, a virtually unparallelled ritual in British witchcraft). The spells incanted by the Devices betray folk-catholic survival (paternoster, ave, five wounds, holy rood), and the pathetic James was in the habit of receiving communion and crossing himself. But Lumby's conclusion (p.101), that "these words are infused with Christian faith; no satanist would utter such charms" makes a weightier claim than the evidence will support.

Indicating these wider dimensions is the important contribution of Lumby's study. We are indebted to him for pointing out their significance, identifying them and venturing some comment upon them. A full understanding however requires a deeper and more penetrating analysis than he has provided.

Daid B. Foss

Peter Marshall, *The Face of the Pastoral Ministry in the East Riding, 1525-1595,* University of York, Borthwick Paper No. 88, 1995 pp. 26. £3.

In the late 1520s almost one in fifty of the inhabitants of the East Riding may have been a priest, a proportion that had declined to one in 363 seventy years later. The benefices of the area were poor, providing a modest living for men who were increasingly university trained and married. This study, mostly based on details of litigation, provides anecdotes of parishioners', attitudes to their clergy. Some resented being called 'priest' rather than 'minister', or being reminded of their humble origins, like the 'red-headed souter' of Scalby. Complaints against clergy included 'daily and intolerable drinking' or frequent playing at cards. The vicar of Hutton Cranswick compared his parish to Sodom and Gomorrah, while at Wold Newton the reading of services was entrusted to a stuttering six-year old. The vicar of Kirby Grindalythe was nearly murdered by a Malton mob and at Driffield, though lack of sermons was a common complaint. Alice Walker was accused of having dressed as a man and preached from the church pulpit. However, the author concludes that 'in 1595 the face of the pastoral ministry was leaner and perhaps more care-laden than ... in 1525, but it was recognisable still'.

F. Pedersen. *Romeo and Juliet of Stonegate: a medieval marriage in crisis,* University of York, Borthwick Paper 87. York 1995. 21 x 15cm. 36 pp. Price £3 (plus 35p. postage and packing, from Borthwick Institute, York Y01 2PW).

This monograph is no dry and dusty trawl through ecclesiastical cause papers but a lively drama worthy of Ellis Peters in which Juliet becomes disenchanted with an increasingly violent husband and Romeo uses force, guile and imprisonment to obtain possession of his wife's inherited lands and tenements. The case concerns a strong-willed and independent young woman Agnes Huntington and a domineeringly cunning, freeman Simon Munkton in the period 1338- 46. Agnes could not prevent the disposal of her property by recourse to secular law, but she could by appealing to ecclesiastical law for an annulment of marriage. The grounds for annulment were her previous marriage contract. Once the Church Court had disposed of pleas of cruelty, abduction and heavy-handed persuasion, it had to decide who did Juliet marry first. Had she exchanged vows with John of Bristol her first Romeo in the garden of Mulberry Hall in Stonegate? Had she previously pledged herself to and slept with Simon Munkton her second Romeo, who stood beneath her window in Stonegate? Unfortunately the outcome is unknown. Dr. Petersen presents this case as an example of the meagre protection for feminine property rights. However it is really the raw material for an imaginative novelist to complete with a romantic or a murderous ending.

S.J. Rawnsley and F.B.Singleton, *A History of Yorkshire.* Phillimore: Chichester 1995. 24.5 x 19cm. 144 pp. 18 maps. 65 plates (14 in colour). Price £14.95.

Dr. Rawnsley has prepared the third edition of a textbook which first appeared under the authorship of Drs. W. E. Tate and Singleton in 1960). It is a highly selective and compressed work which from early prehistory to the present day in only 5 pages. It is best skimmed through rather than scrutinised closely because the text is often telegraphic. The photographs, especially those in colour, are well chosen though sometimes inadequately captioned. The 93 marginal illustrations seldom enhance the text and could be severely pruned. The final chapter improves this edition, entitled 'Images of Yorkshire' Rawnsley tries to capture the inherent characteristics of Yorkshire folk and Yorkshireness.

R. Spence, *The Shepherd Lord of Skipton Castle, Henry Clifford, 10th Lord Clifford 1454-1523* Skipton Castle, Skipton 1994.21 x 15cm. viii 74pp. 21 illus. (4 in colour), 3 maps. Price not stated (available from Skipton Castle).

This attractive and well-produced booklet seeks to disentangle the fiction of the 'Shepherd Lord" from the reality medieval baron. In a sympathetic and well-researched account he traces the fortunes of Henry l0th Lord Clifford from his threatened existence during the Wars of the Roses (in hiding on the Yorkshire Wolds) to his attendance at the courts of the first two Tudor kings and his restoration of the Clifford fortunes by careful estate management, firm insistence on his feudal rights, prudent acquisition of profitable Crown offices and advantageous marriage alliances. Added to this was Henry's leadership of his Craven levies at Flodden Field and his pious support of local monastic worship and building projects. These provide a fully rounded picture of this powerful lord.

The nature of those sources available to Dr. Spence means that we more often see the marriages, the family links, the land-holding and the more serious misdemeanours, rather than the direct evidence of intimate personality, daily domestic and intellectual life. It is difficult to discern character from the surviving buildings and the court cases; what the author does uncover is admitted to be contradictory. However the life and career is fluently told with the illustrations occurring just when they are needed. The booklet has the occasional typing error, the genealogical table omits Henry's daughter Margaret and her husband. The appendix listing 'personnel' would have been more helpful if it had been a proper index of personal names with page references. Despite these minor blemishes the author has provided a well-written, well-illustrated and lively biography of which he and his publisher should be justly proud.

Lawrence Butler

Ruth Strong, *A History of Fulneck Girls' School, 1741-1994,* Fulneck School, Pudsey, West Yorkshire, 1995; pp. vi + 96, ills 52. £5.

Founded at Broad Oaks in Essex as the Girls' Oeconomy of the Moravian church, the school moved in 1755 to Lambshill, later Fulneck, near Pudsey. It gradually became more like other girls' boarding schools as numbers increased, the age of entry was raised to six, the title of 'Oeconomy' was discarded, and the practice of learning God's will by drawing lots was abandoned. By 1994 few of the pupils came from Moravian families, being greatly outnumbered by other Protestants, Catholics, Jews, Muslims and Hindus. This thorough history, well illustrated, and documented with ample quotations from records and memoirs, will appeal princpally to present and former pupils. The subjects studied (music was always important), games, customs, buildings and achievements are chronicled, together with lively anecdotes of the staff. Much has changed from the days when the few pupils walked in the burial ground and contemplated with pleasure the names on tombstones of those they had recently known and hoped to join. Now the Fulneck School sends parties to visit Moscow and Prague, while its charitable interests range from the Terence Higgins Trust to the provision of recorders to Jamaican children.

Nigel Tringham (ed.). *Charters of the Vicars Choral of York Minster: the City of York and its suburbs. (Yorkshire Archaeological Society Record Series,* CXLVIII, 1993 for 1988 and 1989)

Richard T. W. Mc Dermid (ed.) *Beverley Minster Fasti: being biographical notes on the provosts, prebendaries, officers and vicars in the church of Beverley prior to the Dissolution*, (YASRS. CXLIX. 1993 for 1990).

These two splendid volumes continue the Yorkshire Archaeological Society's achievement in bringing primary sources and research aids into print accompanied by the most scholarly and helpful of editorial notes and introductions. The two volumes are, in a sense, complimentary, for they provide a guide to the activities of two collegiate ecclesiastical institutions in the medieval period: the Vicars Choral of York Minster and the clergy of Beverley Minster.

Nigel Tringham's edition of the York charters of the Vicars Choral and his useful introduction make clear how dependent the running of the Minster was on its minor clergy and how dependent in turn they were on an income from their landed estate, especially in the city of York. The introduction goes some way towards explaining how that estate was acquired and maintained, but it is the charters themselves, 581 for the medieval city, which are rightly the prime focus of interest. The charters have been taken both from the surviving collection of original deeds (often complete with seals - which are described here) as well as from the vicars' cartulary. The editor has chosen to re-arrange all this material by street, and in some cases groups the charters by the property to which they refer, together with brief notes on the history of that property. The vicars' archives contain approximately 10% of the surviving evidence of this kind for the appearance, development and occupation and ownership of households in the city in the later medieval period. Here is evidence not only about the domestic buildings and street-names of the city, the density of occupation and the value of property over more than three centuries, but also unique references to the city's industries and services - particularly in some of the most densely developed areas of the city, close to the Minster and near Ousebridge. Among the mercers, masons and marshals, there are buglers, organists and harpers; illuminators,painters and notaries; and the full range of crafts from apothecaries to woolpullers. To have this collection fully available in print, together with helpful explanatory notes, tables and cross-references, provides an indispensable asset for urban historians and archaeologists alike. It is soon to be joined by a companion volume on the vicars' properties outside the city of York.

The late Canon McDermid's biographical dictionary of the clergy of Beverley Minster in the medieval period is prefaced by an introduction on the history of the provosts, canons and minor clergy of Beverley and accompanied by two extremely useful maps of their estates and thraves. Beverley's prebends were comparatively well endowed - on a par which many cathedral stalls elsewhere - and naturally enough were often used for the patronage of both royal and ecclesiastical administrators who did not reside in Beverley, leaving the running of the Minster to a small number of residents and principally to its vicars. Information on the careers of the comparatively public figures of the canons is naturally much fuller than for the predominantly local, and rather poorer, vicars, but it is instructive to have both ranks of clergy represented in this volume. The dictionary itself is very thorough and complimented by generous footnotes which add all kinds of 'not strictly relevant' but nevertheless illuminating material as well as several cross-references to the fabric and furnishing of the church.

Many of the canons of Beverley were also canons of York, and so will be found in both the volumes which are the subject of this review. Here is Nicholas de Huggate (East Riding) who was a royal clerk in the service of three kings from his boyhood to old age. He was concurrently prebendary of York, Beverley, Salisbury, Hereford, Wingham, St Martin-le-Grand, archdeacon of Gloucester, warden of St Nicholas Hospital in York, warden of the royal Free Chapel of Aber near Bangor, rector of Carlow, Scartho and Benniworth. After 1330 he retired to Beverley, became an important patron of the vicars choral of York and is buried in a sumptuous tomb in Beverley Minster (McDermid, pp. 36 - 7: Tringham, pp. 117 - 8). Such men, so important in their own time, would now be lost to us forever without the help of the small print of these two timeless works of reference. Both books must have been laborious to produce, but without works like them, not only Nicholas Huggate, but scholarship itself, would be lost.

York *Sarah Rees-Jones*

Christopher Webster, *R.D. Chantrell, Architect: His Life and Work in Leeds,* Thoresby Society, Second Series 2d ser. 2, 1991.

Arising out of research for an MPhil at the University of York, Christopher Webster has provided in 148 pages an admirably thorough and enjoyable account of the work and significance of the architect Robert Dennis Chantrell (1793-1872), who settled in Leeds in 1819, following his arrival in Halifax the previous year where he '... restored the parapet and pinnacles of the parish church'. What precisely were Chantrell's achievements? He came to Leeds on winning the commission to build the Public Baths in Wellington Road (1819-20), and soon afterwards designed the South Market which cost the enormous sum of £22,000 and featured as its centre-piece a circular Doric temple. These and other more modest public buildings were in the Greek Revival style, and one theme to which Christopher Webster devotes virtually a whole chapter is his seven-year pupilage to Sir John Soane. Soane was one of the three attached architects to the Commissioners for Building New Churches, following the Church Building Act 1818, and it is in the field of church building that Chantrell made his most distinctive contribution. Using the pages of the *Leeds Intelligencer,* Christopher Webster has established a clutch of private houses, but only the pleasant neo-classical Armitage Bridge House (1828) for William Brooke has been firmly identified and, unlike Chantrell's obviously fine public buildings, has survived. But between 1823 and 1850 he designed some twenty-five new churches, not a few of them for the Commissioners for Building New Churches. He also seems to have attracted quite a strong reputation for being a really good (as we should say nowadays) conservation architect, able to identify structural faults and deal with invasive attacks of dry rot, and it is suggested that in the period between leaving Soane's office and settling in Yorkshire Chantrell may have worked either for a builder or a surveyor. Soane himself was the son of a bricklayer and in one of his Royal Academy lectures (quoted by Christopher Webster) he underlined the necessity of a 'thorough knowledge of Construction, and of the Nature and Quality of building materials ... Nothing is so well calculated to insure the Architects' success in life, as without this knowledge, which can only be obtained by great experience and attentive observation, formed on real practice, all his other attainments will be of little avail'. The first group of Chantrell's churches dates from the 1820s and includes the now sadly demolished Christchurch, Meadow Lane, Leeds; he enlarged existing churches and chapels, including those at Bramley and Armley in the 1830s; and a notable achievement of the middle period of his practice was the new church at Skipton, which has a long chancel raised above the level of the nave by steps, a nave with clerestory, and north and south aisles. Christchurch, Skipton, dates from 1834-35 and, as Christopher Webster remarks, at the time it was one of the most 'advanced' ecclesiastical buildings in England, and deserve to be better known as a landmark in the Gothic Revival and in the ecclesiological development of church planning and arrangement. Between 1837 and 1841 Chantrell was much preoccupied with the total reconstruction of Leeds Parish Church, St Peter's, deservedly one of the best-loved churches in the north of England and one whose significance in providing for changing developments in Anglican worship, and also for its serious use of the Decorated and Perpendicular styles, has long been recognised. Another important commission at this time was his sensitive repair of the roof and west gable at Adel Church in 1838. Perhaps it was his careful study of Adel which led to or deepened his interest in the Norman style, which he deployed in building a new church at Shadwell, in the rebuilding of Fangfoss (1849-50) and in the new chancel of 1858 for St Michael, Malton.

Christopher Webster divides his consideration of Chantrell's architectural work into a number of convenient periods and in the last period which he identifies, 1842-1847, he formulated and put into use a system of proportions which he believed that medieval architects had used. His theories were published as a paper in *The Builder* in 1847, and Christopher Webster both illustrates and analyses Chantrell's findings, referring also to his involvement with Freemasonry and his contact with the Huddersfield architect, William Wallen, who himself sent in 1842 a pamphlet to the Commissioners for Building New Churches setting out 'from existing remains and actual measurements, the existence of Geometric Principles in the structures of the Middle Ages'. Chantrell propounded his theories to the Leeds Philosophical and Literary Society on 7 April 1843, and again to the Institute of British Architects on 14 June 1847.

What all these activities show may be summarised as follows. Born and trained in London, Chantrell is an early and important instance of an architect with proper training who settled in a major provincial city, namely in this case Leeds, and made a significant contribution to the development of architecture as a profession in the provinces, and engaged in significant public buildings and a wide range of church designing and repairing at a time when this was a crucial activity in England, thanks to the activities of the Church Building Commission, and later on the Ecclesiological Society, and the effects of the Oxford and Cambridge Movements. His work as an architect was soundly based on practical experience of building construction. Apart from extensive repairs and perhaps remodelling to Rudding Park, he seems not to have had a country house practice; which, as Christopher Webster points out, is somewhat odd in someone trained under Soane. It is also odd that his career ends abruptly on his going to London, perhaps after receiving a substantial inheritance from his father, in 1847.

Christopher Webster's study shows what can be achieved by diligent use of archives, in Leeds and York especially. The Thoresby Society series is an admirable one, and this study of Chantrell is an ornament to it.

Institute of Advanced
Architectural Studies York

Peter Burman

All communications relative to the Editorial side of the **Journal** should be addressed to the Hon. Editor, R.M. BUTLER, M.A., PH.D., F.S.A. 32 Green Lane, Acomb, York YO2 3DL from whom list of conventions should be obtained by intending contributors.

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